



2024

✓ Your Partner in Cultivating
the Desert's Future

Ministry of Agriculture and Land Reclamation

DESERT RESEARCH CENTER



✓ Seventy years of development



A model to be emulated in the field of scientific research and agricultural development | For a prosperous agricultural future in a harsh desert environment.



THE ESTABLISHMENT

1927



King Fouad had thought of establishing a governmental entity that is specialized in the study of the desert

1950



The institute was officially inaugurated under the name of Fouad I Institute for the Sahara.

1963



Desert Institute was transferred to the Ministry of Scientific Research according to Republican Decree No. 46

1949



Fouad I Institute for the Sahara was established by a decree issued by the Office of the Royal Endowments.

1957



Desert Institute was affiliated to the National Research Center by the Republican Decree No. 915

1990



Republican Decree No. 90 was issued to Establish Desert Research Center and to be affiliated to the Ministry of Agriculture and Land Reclamation.



Goals

- Exploration and study of natural resources in the Egyptian desert.
- Development of sustainable development plans for these resources.
- Conducting scientific, basic, and applied research in water, soils, plants, animals, and energy.
- Studying environmental challenges hindering resource development, including desertification, sand dunes, and climate change.
- Exploring groundwater in the deserts and designing wells to prevent depletion.
- Establishing systems for rainwater harvesting and collection, and designing irrigation systems to reduce water loss.

Mission

Desert Research Center, as an independent specialized scientific and research body, is concerned in general on the fields of groundwater, rainwater harvesting, the nature of desert lands, the desert environment, plant and animal production in arid lands, in addition to human and economic studies.

It is concerned also with linking these study fields with the sustainable development of the Egyptian deserts, and determining the optimal investment methods for its sustainability for the benefit of existing and future generations.

Vision

Study deserts, including; natural protected areas, oases, land fertility, plants, insects, birds, animals, tourist places, and population groups in the desert and their characteristics.

DRC aims to achieve its objectives through four research divisions, 23 associated departments, and unique research units.



ECOLOGY AND DRY LANDS AGRICULTURE DIVISION:



Six departments >

Plant Genetic Resources

Plant Production

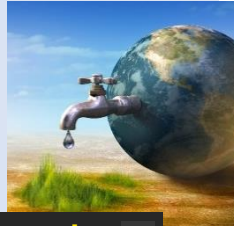
Plant Ecology & Range
Management

Sand dunes

Medicinal & Aromatic Plant

Plant Protection

WATER RESOURCES AND DESERT LANDS DIVISION



Nine departments >

Geology

Hydrology

Geophysical Exploration

Hydrogeochemistry

Pedology

Soil Physics & Chemistry

Soil Fertility & Microbiology

Soil Conservation

New & Renewable Energy

ANIMAL AND POULTRY PRODUCTION DIVISION



Five departments >

Animal & Poultry Breeding

Animal & Poultry Nutrition

Animals & Poultry
Physiology Research

Animal Health Research

Wool Production &
Technology Research

ECONOMIC AND SOCIAL STUDIES DIVISION



Three departments >

Economic Studies

Agricultural Extension

Social Studies





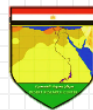
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1. WATER RESOURCES AND DESERT LANDS DIVISION

2. ECOLOGY AND DRY LANDS AGRICULTURE DIVISION:

3. ANIMAL AND POULTRY PRODUCTION DIVISION

4. ECONOMIC AND SOCIAL STUDIES DIVISION



**WATER RESOURCES
AND DESERT LANDS
DIVISION**

Geology

Hydrology

Geophysical Exploration

Hydrogeochemistry

Pedology

Soil Physics & Chemistry

Soil Fertility & Microbiology

Soil Conservation

New & Renewable Energy



**ECOLOGY AND DRY
LANDS AGRICULTURE
DIVISION:**

Plant Genetic Resources

Plant Production

Plant Ecology & Range
Management

Sand dunes

Medicinal & Aromatic
Plant

Plant Protection



**ANIMAL AND POULTRY
PRODUCTION DIVISION**

Animal & Poultry Breeding

Animal & Poultry Nutrition

Animals & Poultry
Physiology Research

Animal Health Research

Wool Production &
Technology Research



**ECONOMIC AND SOCIAL
STUDIES DIVISION**

Economic Studies.

Agricultural Extension.

Social Studies.





Main Objectives:

- ❖ Geological survey to identify rock and geomorphology units, in addition to sedimentary and structural basins.
- ❖ Exploring the presence of groundwater, determining the thickness and the depth of underground aquifers, determining the depth and locations of drilling, and designing wells.
- ❖ Evaluating and managing water in underground reservoirs, assessing the amount of water, determining safe withdrawal from wells and optimal utilization of water.
- ❖ Evaluating and monitoring water quality and setting programmes to protect water resources from pollution.
- ❖ Proposing water harvesting systems for the development of rain-fed crops.
- ❖ Studying the origin and processes of formation and evaluation of desert lands, drawing the foundations for their exploitation, and determining priorities of reclamation.
- ❖ Studying and evaluating chemical, natural and mineral properties of soils, and the relationship of soil and plants to water, with studying the effect of mineral composition on soil properties.
- ❖ Evaluating soil fertility and its fertilizing needs, introducing bio-organic farming systems, recycling agricultural and organic wastes, producing vital vaccines, bio fertilization and biopesticides for disease resistance for field crops, vegetables and medicinal plants in the new lands.
- ❖ Managing land resources and using agricultural mechanization in desert lands, studying the factors of soil erosion and deteriorating productivity, developing means to reduce erosion and deterioration, and managing irrigation and drainage systems under desert conditions.



Geology

This department aims to raise the level of scientific knowledge by conducting specialized scientific research in the field of hydrogeology, geomorphology, remote sensing, sedimentology, stratigraphy, wells drilling and field geology.

Hydrology

This Department is concerned with the quantitative assessment of surface and groundwater sources and developing the most appropriate rational water management plans to ensure sustainable agricultural development for agricultural projects.

Geophysical Exploration

This department carry out measurements on the surface depending on physical properties of rocks to explore the natural resources for sustainable development.

Hydro geochemistry

This department is concerns to the water resources quality and detect the resources of pollution and water quality deterioration in addition to provide non conventional sources of freshwater through water treatment as well as water desalination for arid/coastal/inland regions.



Pedology

Pedology department aims at studying soils in their natural environment, dealing with soil morphology, pedogenesis, soil classification, and soil potentiality.

Soil Physics & Chemistry

Carrying out soil physical, chemical, and mineralogical analyzes at laboratory or field in addition to reclaiming and modifying the characteristics of different types of soil to ensure the improvement of crop productivity and identifying soil mineral composition and estimating its surface area to determine soil fertility and its capability

Soil Fertility & Microbiology

The primary objective of the department is to conduct research on soil fertility, plant nutrition, soil microbiology, and fertilizer management in desert regions.

New & Renewable Energy

Consulting agencies in the field of renewable energy through maximizing the role of new and renewable energy in the field of energy research in all its forms and types to achieve reliance on new and renewable energy sources as an alternative to traditional energy sources in various applications, and reaching an optimal mix for generating electricity from various natural sources, in addition to using technologies that were not used before.



Soil Conservation

The main objective of is to conduct research and scientific studies in various aspects of the use and conservation of soil and water resources to combat degradation factors and achieve sustainable development in desert areas.





Main Objectives:

- ❖ Improving the productivity of the land and water units under the conditions of climate change in desert areas.
- ❖ Documenting knowledge and maximizing the sustainable use of wild plant genetic resources.
- ❖ Conserving of plant genetic resources and plant biological diversity in the desert.
- ❖ Domesticating, adapting, and reproducing wild medicinal and aromatic plants, and maximizing the benefit of them.
- ❖ Developing biological and organic farming systems to ensure food safety.
- ❖ Developing food processing technology from desert products.
- ❖ Developing natural pastoral resources in the Egyptian deserts.
- ❖ Protecting the infrastructure and integrated development areas from the threats of sand encroachment and sandstorms in the Egyptian deserts.
- ❖ Strengthening links with governmental and non-governmental institutions in the field of sustainable development in the desert governorates.



Plant Genetic Resources

Consolidate all relevant research including genetics, genomics, plant breeding, biotechnology, genome editing, biochemistry and adaptation in plants to provide national and international leadership in plant traits improvements.

Plant Production

The department is concerned with sustainable development in the Egyptian desert by applying the proper agricultural practices to ensure sustainable plant production together with environmental sustainability and safety, known as Agroecology.

Plant Ecology & Range Management

is concerned with studying and developing natural rangelands to fill the food gap and contribute to solving the fodder shortage crisis. It is also concerned with studying plant ecology, preserving biodiversity, and studying the plants' physiology and ability to adapt to desert conditions. In addition to studying plant taxonomy and providing plant scientific identification services through the plant herbarium.

Sand dunes

It is one of the pioneer departments in Egypt aimed to monitoring sand dunes movement attributed to wind resources and sand drift supplies by field measurements and using remote sensing and land sat imaginary, stabilization of sand dunes with different methods by temporary and permanent techniques and dunes ecological research studies on natural vegetation habitat in sand dune areas.



Medicinal & Aromatic Plant

This department aimed to improve productivity and quality of medicinal and aromatic plants under the most appropriate and best agricultural and production conditions - utilizing the effective pre- and post-harvest treatments.

Plant Protection

The department is concerned with clean agriculture production in the Egyptian desert by applying Integrated Pest Management to ensure environmental sustainability and safety together with sustainable agriculture production and food safety in addition to protecting the virgin environments in the Egyptian deserts from being infected with newly introduced pests as a result of climate change consequences.





Main Objectives:

- ❖ Increasing livestock productivity under desert and marginal environmental conditions.
- ❖ Conducting applied research work to find alternative resources to combat feed shortages.
- ❖ Utilization of recent approaches of biotechnology to enhance the scientific activities of the division.
- ❖ Utilization of natural rangelands as the main source of feed, augmented by feed supplement treatment of unpalatable range plants for the use as animal feed.
- ❖ Applying the recent approaches and techniques in the field of animal and poultry nutrition.
- ❖ The reproductive performance of desert animals.
- ❖ Housing of desert animals.
- ❖ Adaptation to desert conditions, including heat stress and water salinity.
- ❖ Studying toxic plants in natural range areas as well as parasites and diseases specific to desert areas.
- ❖ The different characteristics of local wool for industrial use.
- ❖ Early selection for fleece quality.



Animal & Poultry Breeding

Aimed to improving the productive efficiency of desert livestock (Sheep, goats, camels, poultry, and rabbit) through genetic improvement and improving the productive qualities for meat, dairy and wool production using modern methods in molecular genetics to determine the locations of high-production genes to reduce the period of genetic improvement.

Animal & Poultry Nutrition

Aimed to improving forage (halophytes or salt-tolerant plants) processing, utilization, and storability under harsh environmental conditions. Enhancement feed efficiency through different feed additives. Utilization and improving desert industrial by products as a non-conventional feedstuff in livestock production.

Animals & Poultry Physiology Research

concerns of Physiology research covers a broad range of animal systems, species, and applications. Research is highly multidisciplinary with current focus in endocrinology and reproduction, systems biology, gastrointestinal physiology and microbiology, environmental and nutritional toxicology. The department conducts studies on The reproductive performance of desert animals, Housing of desert animals and Adaptation to desert conditions, including heat stress and water salinity.



Animal Health Research

The department studies infectious diseases, parasites, environmental toxins, and nutritional deficiencies using modern methods like gene expression and ultrasound. It also seeks natural antibiotic alternatives, conducts veterinary convoys, and provides awareness services.

Wool Production & Technology Research

Concerns of using molecular biology to reveal the locations of genes responsible for producing wool traits in Barki and local sheep in addition to using vegetable dyes for dyeing wool yarn as natural environmentally friendly dyes.





Main Objectives:

- ❖ Carrying out feasibility studies and evaluating developmental projects in desert areas.
- ❖ Developing plans to promote and support agricultural research and transfer technology to desert areas according the development priorities.
- ❖ Establishing a database for the development needs and promoting information systems and prediction mechanisms of threats and crises in desert areas.
- ❖ Developing and implementing training programs and extension convoys in different fields that contribute to the function of sustainable development plans and preserve ecosystems in desert areas.
- ❖ Capacity building of rural women in desert areas and encouraging their contribution to enhancing their family income.
- ❖ Diffusing applications of the convenient cropping patterns for variant desert areas.
- ❖ Diffusing organic agriculture techniques convenient for marginal ecosystems.
- ❖ Establishing investors guiding book that includes investment opportunities in desert areas.
- ❖ Carrying out economic studies of new and renewable energy sources in desert governorates.
- ❖ Evaluating climate change impacts, desertification, drought, and biodiversity deterioration.
- ❖ Raising the efficiency of development process inputs to achieve sustainable developments in desert areas.
- ❖ Diffusing of food processing technology in desert governorates.
- ❖ Promoting the administrative hierarchy of the socioeconomic division and preparing the research staff to achieve variant academic degrees.



Economic Studies

The department focuses on optimizing natural resource use in desert and new land regions, preparing feasibility studies for projects, and studying local markets to strengthen Egypt's supply chain, particularly for agricultural products with relative advantages.

Social Studies

The department studies social, cultural, and environmental aspects of desert regions, examining unique dynamics, practices, and human activities, while exploring sustainable development strategies.



DRC has eleven Experimental Stations in the depth of the Egyptian desert. They provide research work facilities (well-equipped laboratories and barns) in all fields (Soil- Water - Plant – Animal – Poultry – Socio-economic – Agriculture extension). They are distributed throughout the desert to represent different ecosystems in three sectors.

❖ **North Coast Sector**

- ❑ Mariout Research Station
- ❑ Center for Sustainable Development of Matrouh Resources
- ❑ Siwa Research Station).

❖ **Sinai Sector**

- ❑ North Sinai Research Station (El Sheikh Zuweid)
- ❑ Central Sinai Research Station (El Maghara)
- ❑ South Sinai Research Station (Ras Sidr) - Qantara Shark Research Station - Balouza Research Station).

❖ **The Southern Sector of Egypt**

- ❑ Halayeb and Shalateen Research Station –
- ❑ The New Valley Research Station- Toshka Research Station).



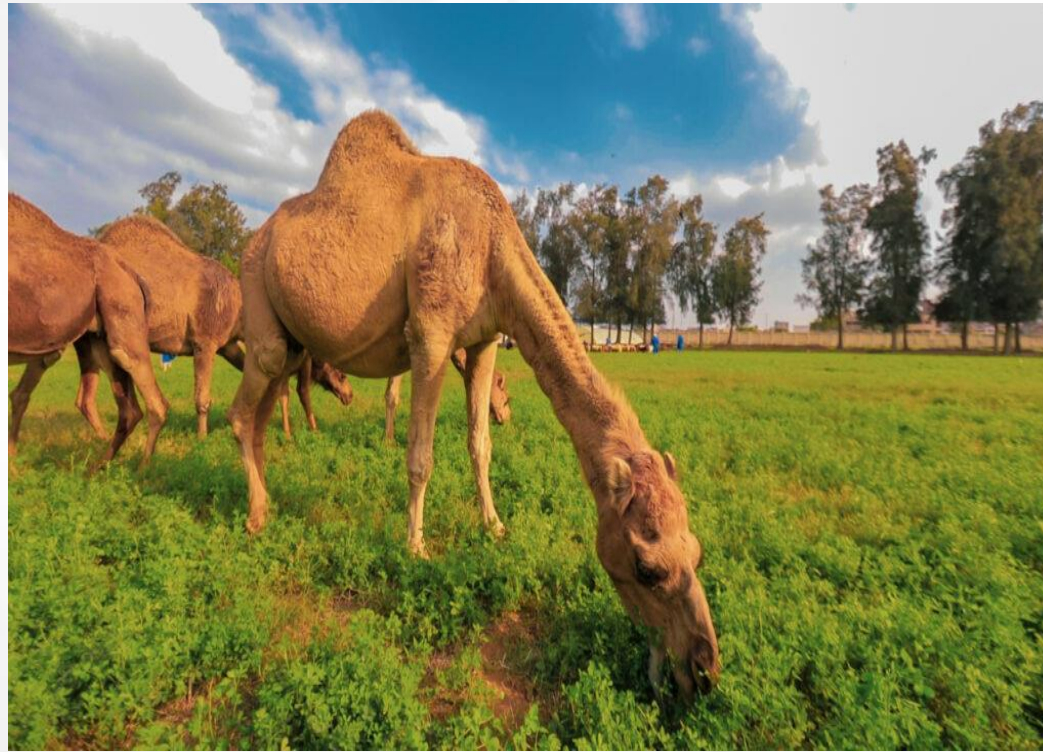
NORTH COAST SECTOR

MARIOUT STATION

It was established in 1967

The Common Activity:

- 1- Irrigation & drainage
- 2- Soil and water managements
- 3- Bio fertilizers
- 4- Waste recycling
- 5- Food industry
- 6- Training



CENTER FOR SUSTAINABLE DEVELOPMENT OF MATROUH RESOURCES

Center for Sustainable Development of Matrouh Resources is considered the largest and the most important pioneering project in the field of integrated development in the areas of rain-fed agriculture. Its area exceeds 15,000 km² along the Egyptian Northwestern coast.

The Common Activity :

- 1- Water harvest
- 2- Environmental qualifying restoration
- 3- pasture management



SINAI SECTOR



RAS SUDR RESEARCH STATION

Ras Sudr Research Station was established in 1976.

The main activities: application of nonconventional water resources (desalination – treatment)
evaluation of the agricultural activities under high salinity of irrigation water



SINAI SECTOR

BALOUZA STATION



Balouza Research Station is located at Al-Salam Canal. It is in the domain of Balouza village, The area of the station is 500 Acers.



SINAI SECTOR

SHEIKH ZUWEID STATION



North Sinai Research Station (Sheikh Zuweid) Its area is 17 Acers.



SINAI SECTOR

MAGHARA STATION



The Development Italian Project established El Maghara station as an extension farm in 1987. In 1993, The station is located on an area of 69 feddan in El Hasna city.



THE SOUTHERN SECTOR OF EGYPT



THE NEW VALLEY RESEARCH STATION

The New Valley Research Station is characterized by a unique geographical and climatic nature.



THE SOUTHERN SECTOR OF EGYPT

TOSHKA RESEARCH STATION



Toshka station is located on an area of 500 feddan for reclamation,



THE SOUTHERN SECTOR OF EGYPT

HALAYEB AND SHALATEEN RESEARCH STATION



The Common Activity

- 1- Irrigation & drainage
- 2- Soil and water managements
- 3- Bio fertilizers
- 4- Waste recycling





CENTERS OF EXCELLENCE

Main Objectives:

- ❖ Building national capacities in the field of water desalination.
- ❖ Reducing the cost of desalination.
- ❖ Studying some fields of membrane technology, including pollutant assessment and control, pre- and post-treatment, cleaning, and disposal.
- ❖ Determining the characteristics of groundwater and sea water to be used as sources for desalination.



Main Objectives:

- ❖ Improving the livelihood of farmers in marginal areas.
- ❖ Optimal utilization of available natural and human resources in marginal environments under climate change.
- ❖ Developing and disseminating appropriate technological packages for the production of cereals, oil and fodder crops in marginal environments among farmers.
- ❖ Developing human capacity with the effective participation in various saline agriculture fields.



Agricultural development services centers in the Sinai Peninsula



Agricultural development services centers in the Sinai Peninsula



Al-Nathila Agricultural Services Center after completing the work

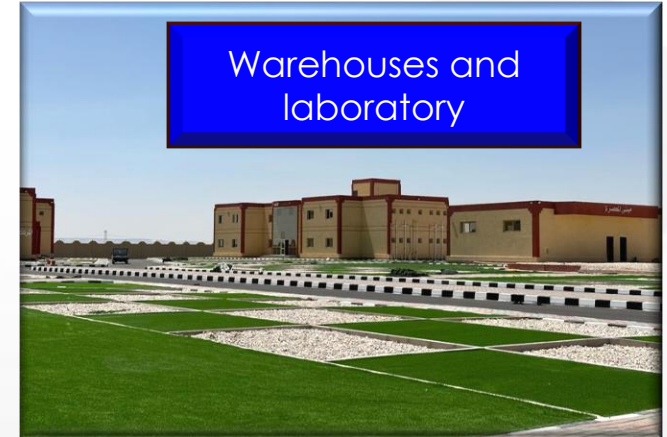
Training and restroom building



the main entrance



Warehouses and laboratory



outlets



Administration



Mechanization



Some experiences of DRC



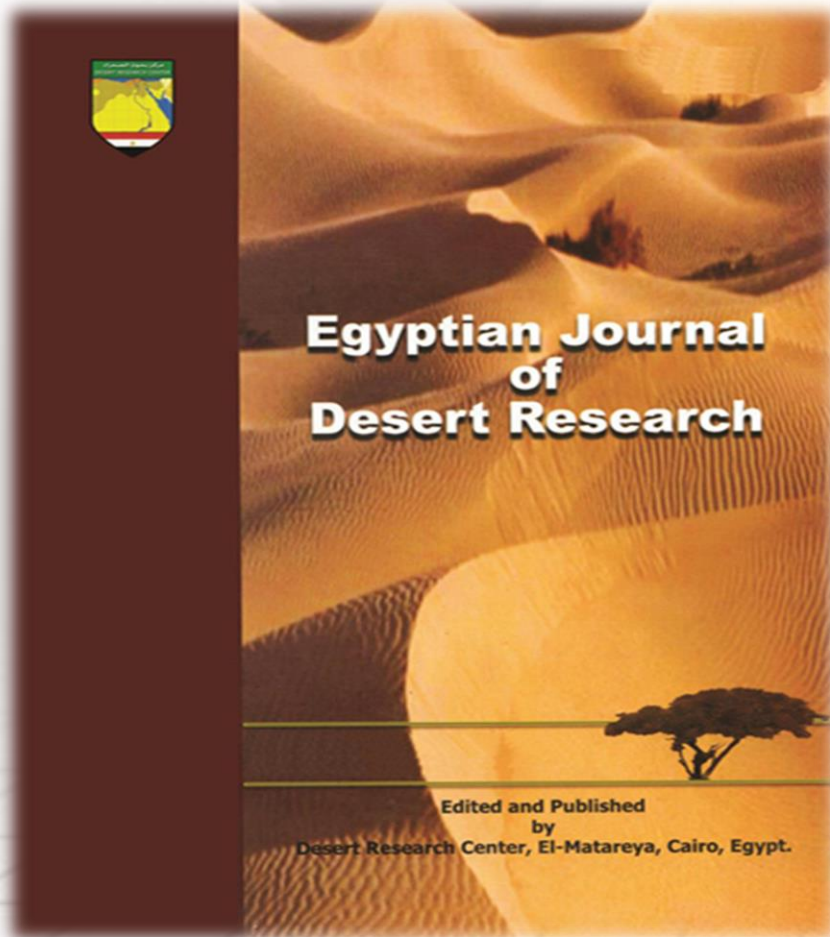
LAND RECLAMATION



Some experiences of DRC



THE SCIENTIFIC JOURNAL



DRC publishes a scientific journal under the name “The Egyptian Journal of Desert Research (EJDR)”

- **The Egyptian Journal of Desert Research (EJDR) is an international peer-reviewed journal published annually in one volume of two issues.**
- **EJDR deals exclusively with the issues of desert research and development that fall within the scope of the environment, natural resources, water, soil, plants, animals, and human resources.**
- **EJDR was previously published as The Desert Institute Bulletin, Egypt (Bulletin de l’Institut du Desert d’Egypte), since 1951.**

Some experiences of DRC



WELL DRILLING UNIT



Some experiences of DRC



REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEMS UNIT



Some experiences of DRC



TISSUE CULTURE UNIT



Some experiences of DRC



CENTRAL LAB





Certifications



CERTIFICATE OF REGISTRATION
— THIS IS TO CERTIFY THAT THE
QUALITY MANAGEMENT SYSTEM OF

Desert Research Center



**1 El Matareya Museum,
Helmyat AZ Zaytoun, El Matareya,
Cairo,
EGYPT**



Has been assessed and registered as complying with the requirements of the
International Standard shown above for the following Goods and Services. Further
clarifications regarding the scope of this certificate and the applicability of the
requirements of
ISO 9001 : 2015
may be obtained by consulting the certificate issuer.

Desert Researches

المراجع
Tony Wilde
Group Chairman

Registration Number: QACR200156
Original 9001 Registration Date: 06-Feb-2020
Current Registration Date: 06-Feb-2023
Expiry Date: 06-Feb-2023



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Ministry of
Trade and Industry
Egyptian Accreditation Council
EGAC



وزارة التجارة والصناعة
الجلس الوطني للإعتماد
إيجاك

Schedule of Accreditation
for Testing Laboratory According to ISO/IEC 17025
Issued To
Desert Research Center Laboratories
Ministry of Agriculture and Land Reclamation
1st Mathf El Matareya- Helmyet Azzytoun-El Naam Square
Cairo- Egypt

Materials / Products Tested	Types of Tests / Properties Measured / Range of Measurements	Standard Specifications / Techniques Used	Materials / Products Tested
Water Soil	Determination of pH Determination of electrical conductivity	ICARDA: 2013	pH meter: Model: JENWAY 3510 S.N.: 1612 Electrical conductivity (EC) meter: Model: Thermo scientific Orion 3star S.N.: B29716 Balance: Model: VIBRA HG-2000 S.N.: 333113

د. سامية محمد عبد الله

Komish El-Maadi, Rad El-Maadi Tower 1 - Cairo - Egypt
Tel: (202) 25275220/5/6/7
Fax: (202) 25275224

FAW/STCL
1 / Dec 2018

الهيئة العامة للغذاء والدواء
الهيئة العامة للغذاء والدواء
الهيئة العامة للغذاء والدواء

Industrial Investment Map: <http://invest.gov> مصر



Assessment Program for One Accreditation Cycle

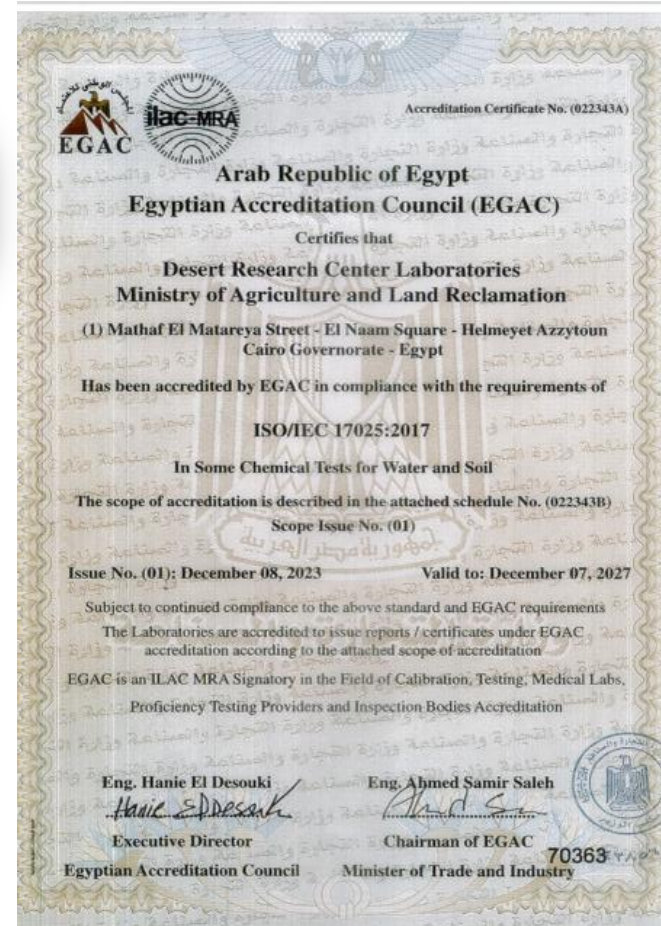
Filled by EGAC Accreditation Officer

CAB Name	Desert Research Center- Ministry of agriculture and land reclamation
CAB Ref. No.	022343
Accreditation Standard	ISO/IEC 17025:2017
1 st Accreditation Date	08-12-2023
Current Accreditation Date	08-12-2023
Accreditation Cycle No.	1
Valid To	07-12-2027

Assessment Visit (1 st , 2 nd , Re assessment, Extension, Re-issuement, Following up, Transition, ...)	Planned Visit Date	Activities to be assessed	Risk	CAB Performance Outcome
Assessment (1)	08-2024	- All clauses of the ISO/IEC 17025:2017 according to the FSP/PG, Assessment plan will be assessed. - All Scope of accreditation will be witnessed during assessment No.1.	- All scope of accreditation will be witnessed during assessment No.1 if applicable. - Any test that the result of last visit showed it needs to re-witness. - Personnel that are not examining during the last visit have to be examined in witness activities during next visit. - In case that the lab applied for extension of scope, all new tests activities will be witnessed.	- Implementation of corrective actions of the findings from the initial assessment will be followed up and verified. - Witnessing for tests. - Examine for lab personnel.
Assessment (2)	02-2026			
Re assessment	03-2026			

Accreditation officer signature: **Dr. Rania Ahmed Hassan**

Date: 08/12/2023





External cooperation



EGY

China & DRC

15 YEARS OF Cooperation

(23 Scholarships including M.Sc., Ph.D., Postdoc. And visiting prof.)



CHN



Huazhong Agricultural University



Ningxia University



Nanjing University



Wuhan Botanical Garden



University of Chinese
Academy of Sciences (UCAS)



Chinese Academy of Sciences

Contact us



0220678356



0220678356



Desert research
center official
page

Desert research center

A pioneering scientific edifice that
contributes to building a
civilization in Egypt

Thank you



211753 matria



(+202) 26357858



<https://drc.gov.eg/>