



Food and Agriculture  
Organization of the  
United Nations

# National updates on soil: KUWAIT

*Dr Hana'a A Burezaq*  
*Kuwait Institute for Scientific Research*

**7<sup>th</sup> NENA Soil  
Partnership  
Meeting**

22-23 March 2022



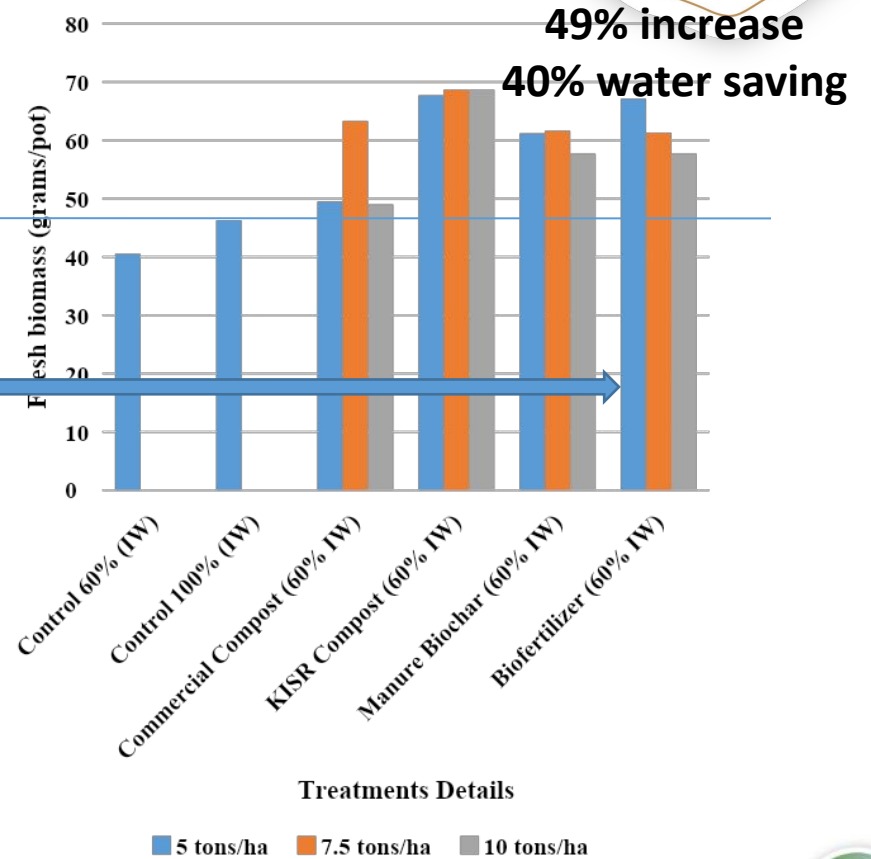
# Main activities implemented under Pillar - 1 Soil Management



Completed Green House Trial on Maize Crop using Compost, Biochar, and Biochar Based Organic Soil Conditioner-Biofertilizer



60% Etc	100% Etc	5t/ha	7.5 t/ha	10t/ha
Control	Control	Biochar based biofertilizer		60% Etc



# Main activities implemented under Pillar 2

## Awareness Rising



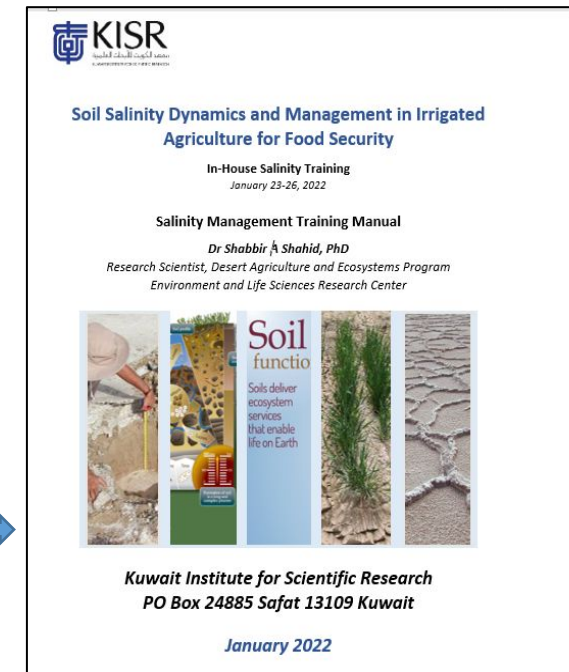
## National Training

Soil Salinity Dynamics and Management in Irrigated Agriculture for Food Security 23-26 January 2022

14 Lectures covering the entire salinity subject  
12 Sessions over 4 days

*Virtual Format*

**SALINITY TRAINING MANUAL**



7<sup>th</sup> NENA Soil Partnership Meeting | 22-23 March 2022



# Main activities implemented under Pillar 3 Research



## INNOVATIVE RESEARCH

# BIOORGANIC SOIL CONDITIONER PATENT

*Biochar Integrated with Specialty  
Chemicals*

US010995271B1

**United States Patent**  
Burezq et al.

(10) Patent No.: **US 10,995,271 B1**  
(45) Date of Patent: **May 4, 2021**

(54) **BIOORGANIC SOIL CONDITIONER**

(71) Applicant: **KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH, Safat (KW)**

(72) Inventors: **Hana'a Adel Burezq, Meshref (KW); Shawqui M. Lahalih, Safat (KW)**

(73) Assignee: **KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH, Safat (KW)**

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/931,011**

(22) Filed: **Jul. 16, 2020**

(51) Int. Cl.  
**C09K 17/32** (2006.01)  
**A01C 23/04** (2006.01)  
**C05G 3/80** (2020.01)  
**C09K 101/00** (2006.01)

(52) U.S. Cl.  
CPC ..... **C09K 17/32** (2013.01); **A01C 23/04** (2013.01); **C05G 3/80** (2020.02); **C09K 2101/00** (2013.01)

(58) Field of Classification Search  
CPC ..... C09K 17/32; C09K 2101/00; C05G 3/80; A01C 23/04  
See application file for complete search history.

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A01N 25/04  
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(10) Patent No.: **US 10,995,271 B1**  
(45) Date of Patent: **May 4, 2021**

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Primary Examiner — Jennifer A Smith

(74) Attorney, Agent, or Firm — Nath, Goldberg & Meyer; Richard C. Litman

(57) ABSTRACT

The bioorganic soil conditioner includes biochar derived from plant waste and a mix of chemicals including sulfonated naphthalene formaldehyde, urea-formaldehyde and polyvinyl alcohol. The bioorganic soil conditioner is made by infusing biochar from lignin-rich plant waste with the mix of chemicals. The bioorganic soil conditioner improves soil aggregation and moisture and nutrient retention capacity. Thus, the bioorganic soil conditioner may be added to soil to improve crop production and stabilize soil, for example, in conditions of high wind or desertification.

6 Claims, No Drawings



# Main activities implemented under Pillar 4

## Information and Data

### Kuwait Biochar Initiative

#### Vision

Educational out reach to Kuwait farming community to save inputs through biochar use to intensify agriculture for food security

#### Mission

Provide platform to potential biochar stakeholders to support safe and economical use of biochar

#### Promise

With the support of Kuwait Institute for Scientific Research (KISR), we will reach farmers in Kuwait to educate and transfer biochar production and use technologies in the next 5 years

**Chairperson – Dr Hana'a Burezq**



#### Quarterly KBI Newsletter

7<sup>th</sup> NENA Soil Partnership Meeting | 22-23 March 2022

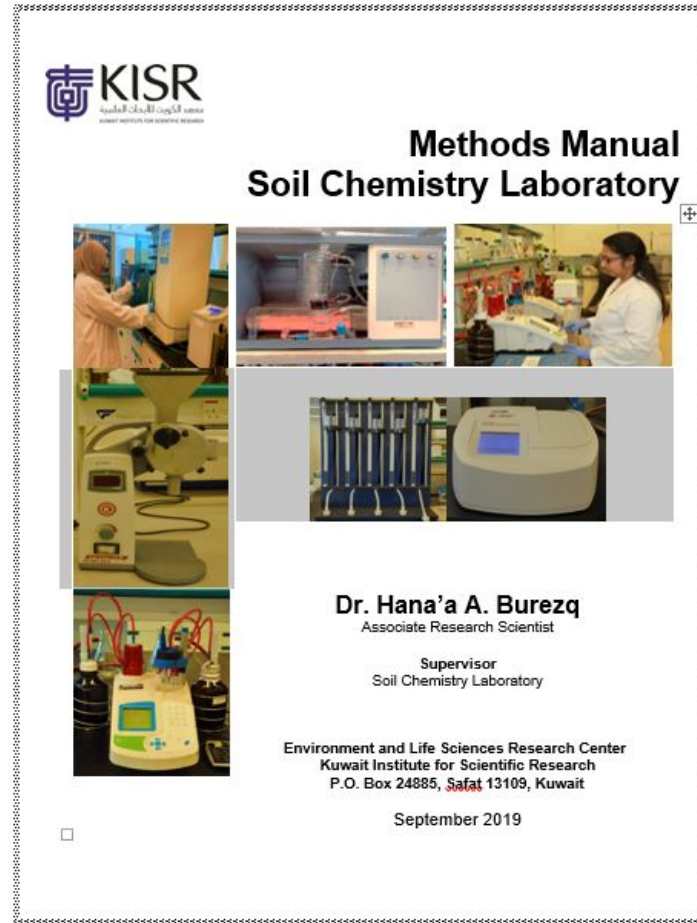


# Main activities implemented under Pillar 5 Harmonization



Organized SOPs in the  
form of 2 manual for  
local use

Soil Chemistry Manual  
Soil Physics Manual





Food and Agriculture  
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*Thanks for your  
attention*

**7<sup>th</sup> NENA Soil  
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**22-23 March 2022**

