Food and Agriculture Organization of the United Nations

GLOBAL SYMPOSIUM ON SALT-AFFECTED SOILS

20 - 22 October, 2021
Virtual meeting

Main conclusions and key findings Theme 2: Integrated solutions and Testimonies from the field

Dr. Kristina Toderich, IPDRE, Tottori University, Japan

Government of the Republic of Uzbekistan
GLOBAL SOIL PARTNERSHIP
itps INTERGOVERNMENTAL TECHNICAL PANEL ON SOILS
United Nations Convention to Combat Desertification
International Union of Soil Sciences
ICBA AGRICULTURE FOR TOMORROW
International Network of Salt-Affected Soils
WASAG The Global Framework on Water Scarcity in Agriculture

Theme 2: Integrated soil – water – crop solutions in rehabilitation and management of salt-affected areas

Testimonies from the field – Good practices to manage salt-affected soils

(Voice from the Bottom) & and reciprocal Approach

Objectives:

- Identify and review innovative management practices and technologies for the management and remediation of salt-affected soils;
- Showcase the good practices illustrating the rehabilitation and sustainable use of salt-affected soils and showing its positive impact on soil health as well as its **environmental and socio-economic context**

Topics from the Sessions: Integrated soil – water – crop solutions in rehabilitation and management of salt-affected areas

Session 2. Integrated soil – water – crop solutions

- **Moderators:** Mr Ashok Patra, ITPS (part1)

  Mr Meisam Rezaei, Vice-chair of INSAS (part II)

Total presentations /session : 9

- **Poster session Theme 2:**

Presentations Context: includes vision and missions from : research institutions; academia; International organizations (ICBA, ICARDA) , National Council for Scientific Research (Lebanon)

----by covering agrolandscapes affected both by dryland salinization (Marocco, Uzbekistan, Lebanon, India, MENA region; Sudan , Ethiopia) – presentations done by Dr. Asad Qureshi; Mina Devkota, Mr. Sharhabil)

- Coastal salinization impact and solutions (lesson learned from Thailand; India, China)- Mr, Liu (China) ;Mr Darwish; Mr. Pongwichian

Session 4. Testimonies from the Fields

- Moderators: Mr. Moderator: Mr Sherzod Umarov, FAO (part1)

  Mr Francisco Pedrero Salcedo, WASAG (part II)

Total presentations /session : 11

- Poster session Theme 2:

Geographically (as case studies): low-cost and ecologically friendly innovative interventions on salinity management: in other words:

= Success stories/Testimonies from the Fields

(we will analyze later on)

Theme 2 (continue)

Outcomes:

Special Lectures :

- **Prof. Tim Flower , University of Sussex, Brighton,UK –** relevant /worldwide recognized specialist on Halophytes in senso largo
- Ms. Ludmila Vorotyntseva – inland sodic; saline-sodic salinization in Ukraine - Institute for Soil Science and Agrochemistry Research, Ukraine

(Focal Point/GSP,FAO, Rome)

- Specific interest has been attracted by the presentation done by **Mr Sharhabil Musa Yahaya**, Ahmadu Bello University, Nigeria

(for which I'll pay attention later)

- Audience was much impressed ---organic soil amendments-----

Audience addressed numerous questions

KEY Constraints Gaps/Needs

What was in Common?

- Water intensive pre-season leaching to ameliorate saline soils
- Water scarcity/Pollution (Multi-Factors Dimensions)
- Non-optimized irrigation system & Alternative Use of Water Resources <
- Problems of salinity are complex and needs different solutions (low Innovations/Investments)
- Small Niche for Halophytes and NNC
- Few livelihood opportunities
- Lack of knowledge/Farmer Awareness /Trainings
- Value added chain and Economics Land Cost Analysis
- Lack of markets

Climate Change and Droughts Cycles

Unpredictable

Success Stories from the Field/and best /Approches /practices other techniques reducing water evaporation

Salt –Affected Soils Reclamation

- Technical and engineering interventions: Cut-Soiler Drainage Technology (Patent –JIRCAS) –presented by Mr. Narjary , Central Soil Salinity Research Institute, India;

Gravel Mulches – Mr Farhad Khorsani , Iran ; Samvel Sahakyan, Armenia

Mr . Musa, Nigerian cases tudy

Application of rice husk and rice straw -

- Irrigation schedule adjustment, gypsum amendments, land shaping, land leveling are recommended as good practices for salt-affected soils

Mulches
Residue incorporation
Residue retention
Gravel mulch

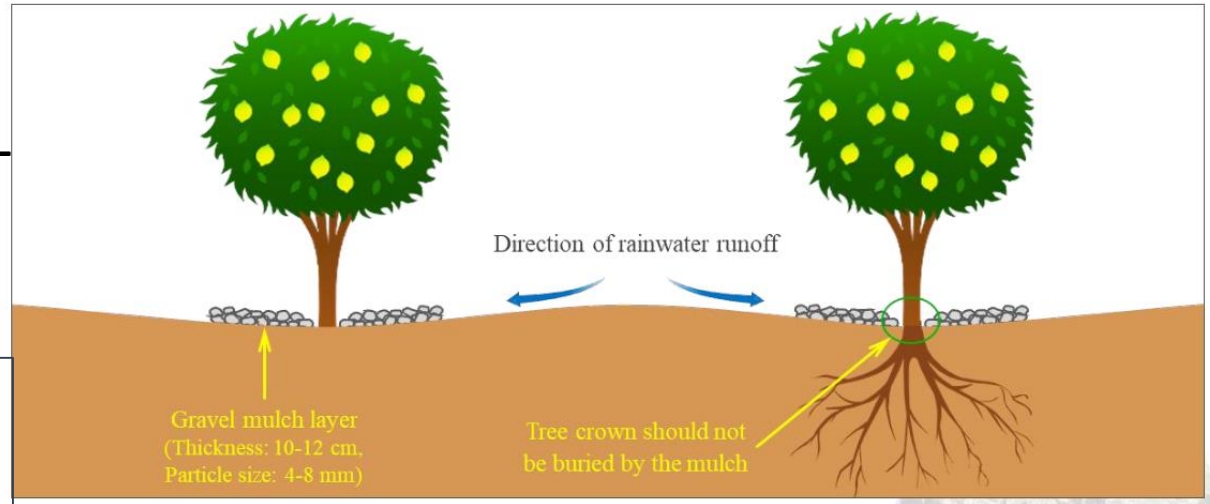
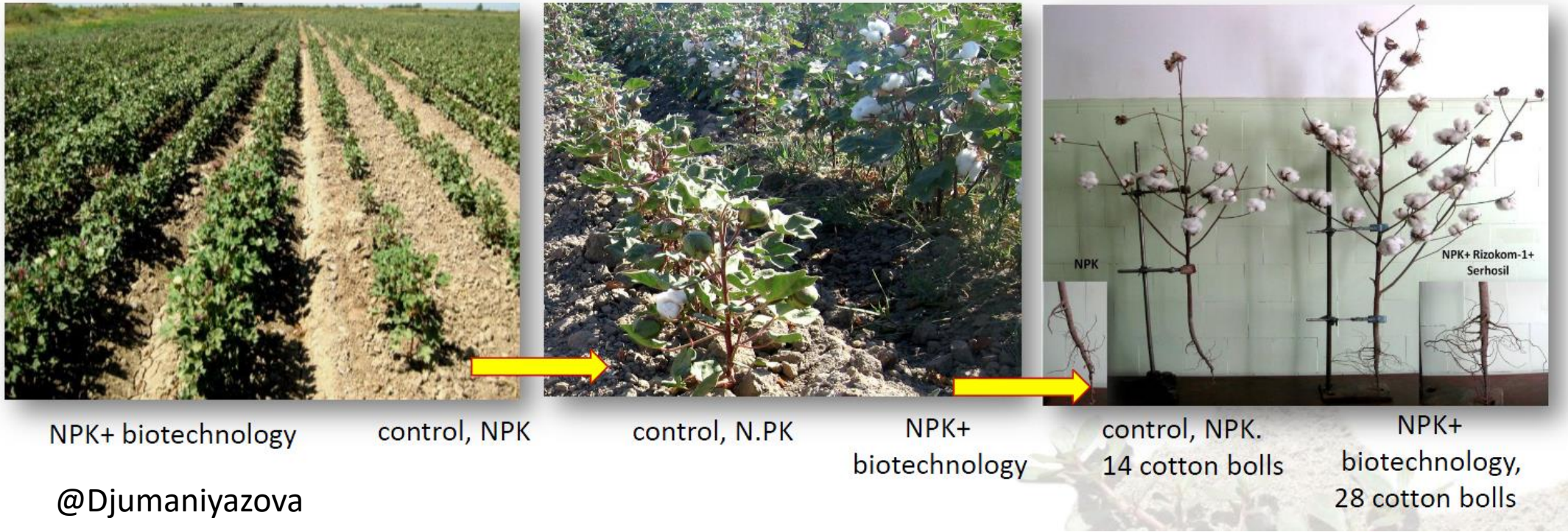


Figure 2. Placement of gravel mulch around the tree, and shaping the orchard floor.

To which Scale?

Nature-based solutions are a key in managing salt-affected soils sustainably

- Phytoremediation
- Improved crop rotations and diversification of cropping systems
- bioinoculants

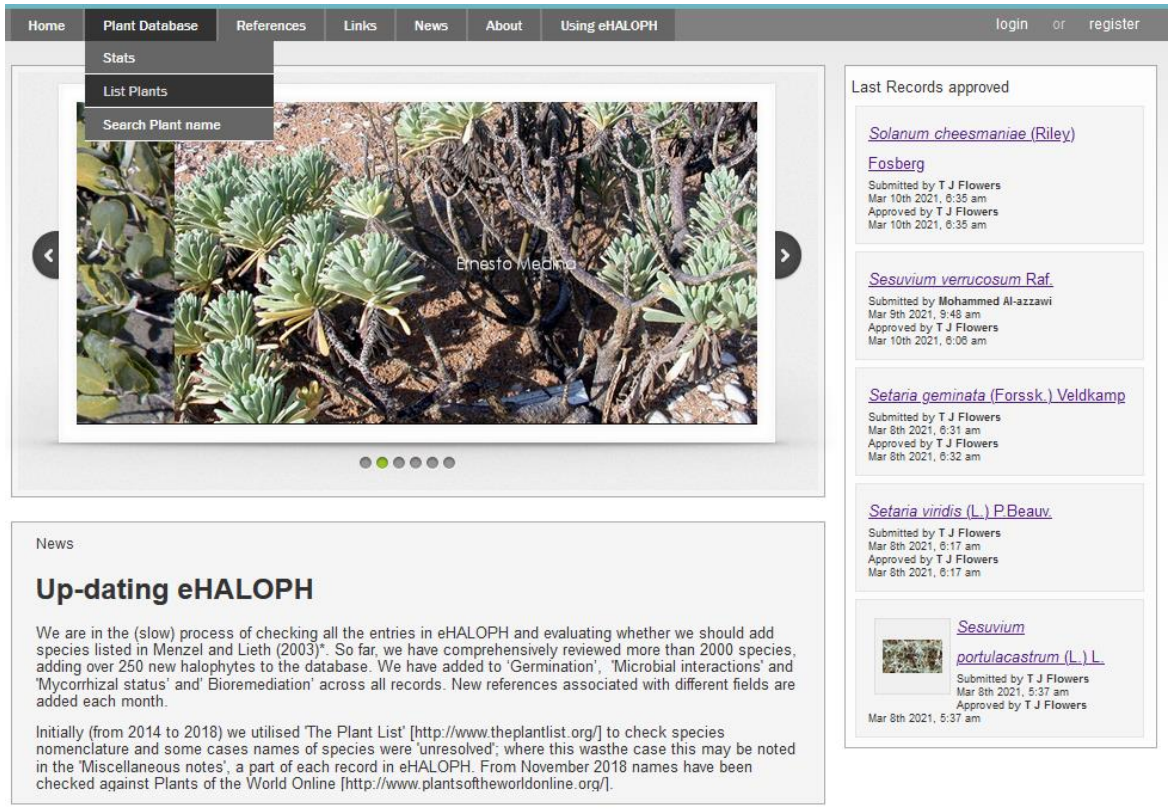


WAYS FORWARDS -

On the top:

Global Network on Halophytes Documentation and Neo-Domestication

eHALOPH



Halophytes & NCC holds excellent promise for degraded/salt-affected areas

Agrobiodiversity Mainstreaming from Salt Affected Lands

Germplasm Exchange – International Nurseries

- Crop Diversification, Biofortification and Biotechnology
- Evaluation and Adoption a wider range of germplasm a new sources of variability for enhanced grain yields;
- Advanced Breeding and Genetic Engineering (Mr Charu Lata , India)

Theme 2 and Testimonies: *overall OutPuts*

Around **60 good practices** and integrated approaches were presented during oral and poster presentations

They will serve as a basis for the database on Good practices for sustainable management of salt-affected soils (once revised by INSAS, SAS&SSM working group);

Organic matter amendment is a good solution for increasing productivity of salt-affected soils. However, in drylands and low-income regions, this resource is usually not available for soil purposes, and the feasible solutions shall be found

…Multiple uses (food, feed and forage) and high nutritive value make quinoa an attractive option for agri-business development

Political and policy interventions

As a key Issues

Policy framework and interplay of relevant institutions in Drylands Countries in the context of Survey, Documentation and Use of Underutilized Water and Plant Resources;

•Empowering Rural Agricultural Communities, especially Women – new education tool to diversify their incomes and Linking smallholders to markets

- ***Integrated Pest Management Control (IPM)***
- ***Intellectual Property***
- ***Women Empowering***
- **Improve and extend extension services to remote farmers**