



VISUALIZING SOIL PROPERTIES: A MULTIMEDIA APPROACH TO TRAINING STUDENTS AND PRACTITIONERS

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Introduction

- Land and water management practices are vital for sustaining agricultural productivity and regional development (Kahn et al., 2008).
- The western region has specific issues such as salt affected soils (Odeh and Onus, 2006) and marginal irrigation water quality that require alternative analyses and management.
 - Includes nutrient management (P in particular, Olsen and Sommers, 1982)
 - Salinity &/or Sodium management
 - Water management practices (leaching, timing)
- Understanding the “why’s” and “how’s” of practices in the western region are critical for sustainable farming.
- Multi-media training materials can assist trainers in delivering concepts necessary for successful soil management.

GOAL: Create animation and video demonstrations as part of a **WSARE Professional Development Grant** to help explain key concepts about soil properties and their analysis for much of the western region.

Objectives

- Create professional videos and animations that are accurate in content, easy to hear, and short in length that can be used by Extension and other professionals to train field staff or students from either a website or YouTube channel.
- Post the products on the web and YouTube
- Archive the products on a website
- Collect analytics about the products

Materials and Methods

Trainers (Extension Specialists) familiar with common farming issues in the western region worked with NMSU ACES Media Productions to record or animate concepts that have been observed to be misunderstood or difficult to appreciate in a training situation. Animations were the work of student animators overseen by the authors. A professional narrator was employed to describe the animations. Demonstrations were recorded using microphones and high quality video equipment and post production labelling & credits.

Collect metrics from website and Google Analytics to assess views, view time, apparent interest, and “shares.” Use video and animation in workshops for feedback and distribute bookmarks as advertisement at meetings and delivery to extension offices.

Results

Selected Animations

“The Olsen Test for Phosphorus”



Why soils with alkaline pH should be tested for plant-available P using the Olsen procedure.

- 113 “embedded”
- 30% embedment rate
- 52% of video watched
- 489/376 Views/YouTube

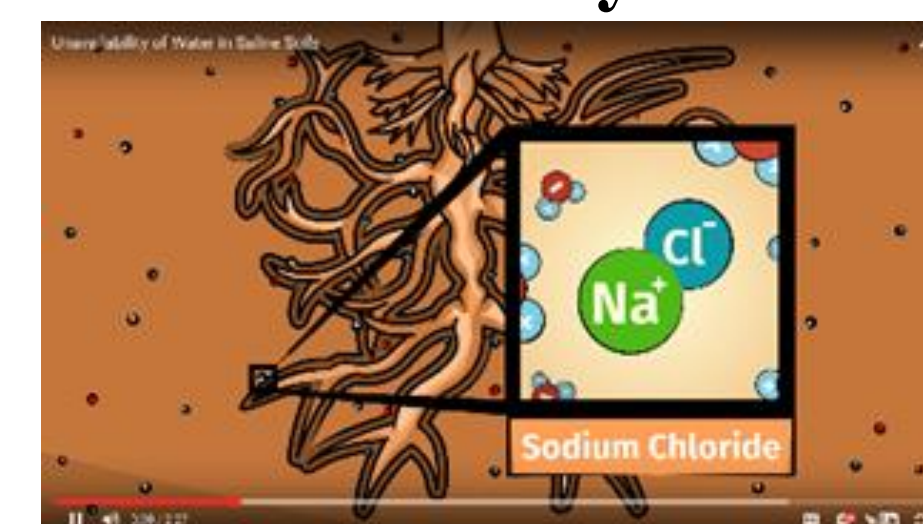
“Understanding SAR”



Explains how SAR and EC impact each other with respect to dispersion versus flocculation.

- 108 “embedded”
- 15% embedment rate
- 70% of video watched
- 828/720 Views/YouTube

“Unavailability of Water in Saline Soils”



How sodium chloride in soil binds with water and impedes roots from taking up water.

- 80 “embedded”
- 8% embedment rate
- 64% of video watched
- 1050 views/YouTube

Video and Time Lapse

Dispersion and Flocculation



Particle Size in Soil: Mason Jar and Beads capturing size, distribution, air spaces, and water.

- 83 “embedded”
- 5% embedment rate
- 61% of video watched
- 1,848 views

Gypsum and water infiltration



Illustrates the effect that Calcium has on aggregation to promote water infiltration.

- 90 “embedded”
- 5% embedment rate
- 61% of video watched
- 1,169 views

Soil Sampling Videos



Demonstrates principles and aspects of soil sampling for small and large fields

- ave 50% “embedded”
- 50% embedment rate
- 50% of video watched
- 439 views/YouTube



This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2014-38640-22175 through the Western Sustainable Agriculture Research and Education program under project number EW15-011. USDA is an equal opportunity employer and service provider. NMSU is an equal opportunity employer and educator.

WSARE EW15-011



References

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- Odeh, IO, and A. Onus. 2008. Spatial analysis of soil salinity and soil structural stability in a semiarid region of New South Wales, Australia. Springer Science +business media LLC.
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Discussion

- 16 products were produced.
- The most watched product has been flocculation. We suggest that this is a good search term as evidenced by 10,556 views over 18 months.
- Soil sampling videos had the best embedded video rate.
- All the products have received positive comments by audiences where training has taken place.
- Bookmarks were created and distributed to aid in advertising the resources.