

Promoting innovations in agricultural water management: on-farm demonstration day

This on-farm demonstration day will focus on innovations in crop and soil management, irrigation management and water resources

Location:

Date: Friday 16th June 2017

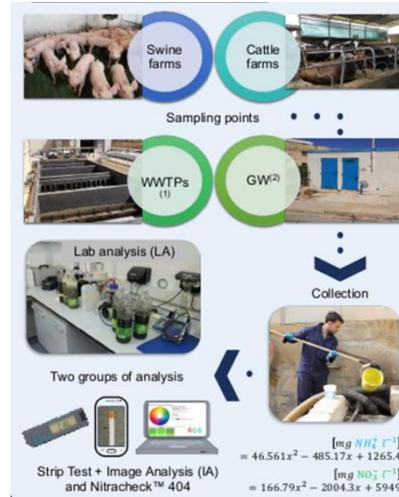
Draft Programme

Time	Activity
09.00	<p>Registration for morning demonstration event</p> <p>Coffee and refreshments</p>
09.30	<p>Formal event opening - MCAST and Farmer Welcome</p> <p>Malcom Borg and the host farmer formally open the event and welcome attendees to the 1st on-farm agricultural water management demonstration event in Malta</p> <p>Malcolm to briefly explain the aim and objectives of the FOWARIM project</p> <p>Farmer to briefly describe the farm business, crops grown, water challenges etc.</p> <p>Jerry to introduce the plan for the morning, the purpose of the group sessions and the practical demonstrations to help growers improve their soil, crop and water management</p> <p>Participants then split into 4 groups</p>
09.40	<p>Session 1 (30 mins)</p> <p>Participants split into 4 groups, with each group attending one of the four 'stations'. Each station will have a translator:</p> <p>Station 1: Evaluating nutrient valorisation from renewable irrigation sources in Maltese agriculture (Ruben Sakrabani and Steve Hallett)</p> <p>An in-field diagnostic tool will be showcased to measure available nitrogen in the forms of nitrate and ammonium in groundwater, treated sewage effluent and livestock slurry. This demonstration will show the pros and cons of using this tool in comparison to conventional analytical methods. If this tool can be optimised it can be used to valorise renewable sources of nutrients to improve resource efficiency in agriculture.</p> <p>Linked to this, a short presentation and demonstration will be provided focussing on 'research into practice' and the proposed development of a novel 'Island Observatory for Water and Agricultural practices'. Drawing from, and building upon the Maltese Soil Information System (MALSIS)[®], this will provide researchers and practitioners the opportunity to hear about, and comment upon, the suggested academic research direction to develop a 'digital island observatory for the Maltese islands'. It is intended</p>

this tool would be able to present key socio-environmental themes (e.g. soils, geology, water use, land use, demographics), acting as the foundation for computer-based modelling of alternative agricultural crop and land management strategies



Specialist paper selective for available nitrogen



Sources of irrigation water that can be tested using this new approach

Station 2: Managing soils for crop yield and quality (Lynda Deeks)

Demonstration will be held around a soil pit excavated to reveal plant roots (tomatoes). Depth of soil pit will depend on depth of roots and soil conditions. The maximum depth will not exceed 1 m in order to comply with our standard risk assessment (will likely be a lot shallower *ca.* 50 cm).

Discussion points will focus on:

- 1) Soil and soil texture
- 2) Infiltration of water, demonstration using single ring, 'farmer friendly' method (surface and subsurface location if appropriate)
- 3) Discussion of factors affecting infiltration, percolation and soil moisture storage, including soil structure, soil crusts and compacted zones (if appropriate in the field)
- 4) Soil water content: consider aspects of drainage characteristics, total available water content and readily available water content (threshold soil water content)
- 5) Look at and discuss rooting zone within the soil profile and what it means in terms of available water.
- 6) Discuss monitoring soil moisture content, talking about the advantages of using *in situ* soil moisture probes and multi depth monitoring for better scheduling of irrigation and more efficient use of water resources.

Station 3: Understanding evapotranspiration (ET) and scheduling irrigation needs (Jerry Knox)

This station will focus on understanding the components of evapotranspiration (ET) and its importance in irrigation scheduling, including demonstration of the ETgage™. The importance of matching irrigation application rates to soil infiltration will also be

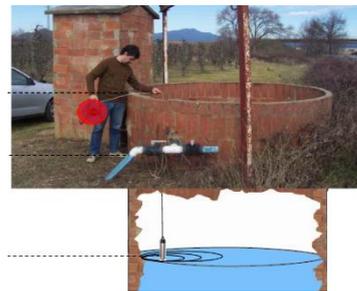
explained and different approaches for monitoring soil moisture demonstrated using a series of pots and the Delta T Theta probe.



The concepts of ET and irrigation scheduling will be linked back to the practical aspects of managing irrigation systems in-field and the importance of 'irrigation uniformity' and 'adequacy'.

Station 4: Managing groundwater for irrigated agriculture (Lucila Candela)

The purpose of this station is to introduce to the principles of groundwater quantity and quality monitoring. The activity will concentrate in water-quality sampling and field measurement procedures in an existing well located in the farm. Demonstration will focus on:



- 1) Water level measurements in the existing borehole to provide data needed to evaluate changes in the resource over time
- 2) Presentation of current existing methods and assurance practices. Water level measurements with electrical tape
- 3) Water quality sampling: procedures, devices, storage and transport to the laboratory
- 4) Test for groundwater quality in the field

A brief introduction to groundwater use for agricultural management in Malta

10.15 Session 2 (30 mins)

After Session 1 ends, participants stay in their group, rotate and move to next station
4 stations repeat demonstration

10.50 Session 3 (30 mins)

After Session 2 ends, participants stay in their group, rotate and move to next station
4 stations repeat demonstration

11.25 Session 4 (30 mins)

After Session 3 ends, participants stay in their group, rotate and move to next station
4 stations repeat demonstration

12.00 Open stands and displays promoting innovations in water management. Participants free to revisit Stations and follow up discussion with technical staff

Trade stands, research stands, poster displays

	A display will also be available outlining the 'Maltese Soil Information System' (MALSIS) project. Funded by the EU and completed in 2004, MALSIS provides a unique overview of the soil characteristics across the three islands.
12.15	Refreshments available
13.30	Registration for afternoon demonstration Coffee and refreshments
13.45	Formal event opening - MCAST and Farmer Welcome Malcom Borg (MCAST) and the host farmer formally open event and welcome attendees to 1 st on-farm agricultural water management demonstration event in Malta Malcolm to briefly explain the aim and objectives of the FOWARIM project Farmer to briefly describe the farm business, crops grown , water challenges Jerry to introduce the plan for the afternoon, purpose of group sessions and practical demonstrations to help growers improve their soil, crop and water management Participants split into 4 groups
14.00	Session 1 (30 mins) Participants split into 4 groups, with each group attending one of 4 'stations': Evaluating nutrient valorisation from renewable irrigation sources in Maltese agriculture (Ruben Sakrabani and Steve Hallett) Managing soils for crop yield and quality (Lynda Deeks) Understanding evapotranspiration and scheduling irrigation needs (Jerry Knox) Managing groundwater for irrigated agriculture (Lucila Candela)
14.35	Session 2 (30 mins) Participants rotate and move to next station. 4 stations repeat demonstration
15.10	Session 3 (30 mins) Participants rotate and move to next station. 4 stations repeat demonstration
15.40	Session 4 (30 mins) Participants rotate and move to next station. 4 stations repeat demonstration
16.15	Open stands and displays promoting innovations in water management Trade stands, research stands, poster displays MALSIS display: A display will be available outlining the 'Maltese Soil Information System' (MALSIS) project. Funded by the EU and completed in 2004, MALSIS provides a unique overview of the soil characteristics across the three islands.
16.30	Demonstration event close Stations close, dismantle research and trade displays and stands