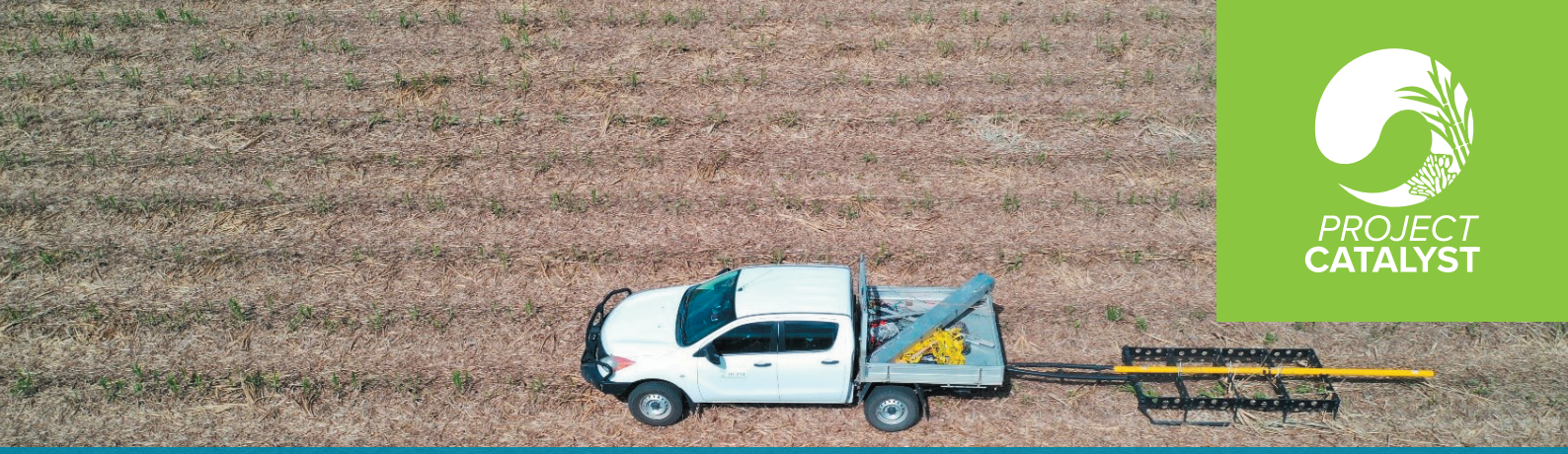

PROJECT CATALYST

PRACTICE FACT SHEET

GUIDE TO EM MAPPING

Project Catalyst is a grower-led innovation project in sugarcane that was formed to explore, validate and broadly adopt management practice changes for productivity gains and improved water quality for the Great Barrier Reef.

WHAT IS IT?

Electromagnetic induction (EM) mapping is a form of precision agriculture that uses a sensor to measure electrical conductivity in soils at various depths.

Measures of electrical conductivity reflect physical and chemical soil properties such as salinity, moisture, organic matter, and clay content. Once collected this data can be used to spatially define different soil zones within a paddock.

HOW DOES IT WORK?

A sled-mounted EM transmitter and receiver unit is towed over a fallow or cut block. The picture shows a DUALEM 421 unit owned by HCPSL that collects data at 1 point per second at 6 depths (0.6, 1.2, 1.5, 2.4, 3 & 6 metres).

This point data is then processed to generate a map based on the EM values.

WHY SHOULD I EM MAP MY BLOCK?

Even though soils may look the same, it's surprising just how variable the properties of these soils can be. Identifying variabilities in sugarcane blocks supports strategic sampling and targeted input based on soil constraints. EM mapping of soil zones allows users to develop management strategies for site specific application such as variable rate amendments, fertiliser or pesticide.

WHEN CAN I GET MY BLOCK MAPPED?

It is best to organise mapping of your blocks soon after harvest - while the ratoon crop is no taller than 30 cm. Fallow blocks are suitable, but preferably before discing. The best data is collected when the block has an even soil moisture profile but is sufficiently dry for vehicle access.

While there is technically no minimum area required, larger areas such as bordering blocks produce a better understanding of soil variability across the farm.

HOW CAN I GET THE MOST OUT OF MY EM MAP?

Reading and interpreting your map

EM maps of our blocks typically show the different zones across each of the six measurement depths as individual colour blocks. EM surveys undertaken on different dates may not be directly comparable due to changes in soil moisture and temperature that effect the EM measurements.

Interpreting the soil zones captured in EM maps is best done in combination with targeted soil testing for each value range. Soil sampling from these zones provides specific information on what type of variability or constraints (e.g. soil texture or salinity) may be present. Your on-ground service provider can help with interpreting and developing your EM data to help you improve your precision farming.

CASE STUDY

Variable rate application of gypsum

Grower 'X' wanted to try targeting his application of gypsum to reduce costs and improve yields.

After EM mapping the block soil samples from across the various soil zones were taken and analysed. It was determined that the area required gypsum at three different rates (0, 2 & 4 T/Ha).

Targeted application of gypsum improved yield and reduced costs for this block.

A special thanks to HCPSL for providing the information used to produce this handy guide.
For further information please contact your local on-ground service provider.

Australian Government | REEF TRUST | Great Barrier Reef Foundation | THE Coca-Cola FOUNDATION | WWF

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PROJECT CATALYST
www.projectcatalyst.net.au