

GUIDE TO EM MAPPING



Q: What is it?

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



Q: How does it work?

HCPSL tows a DualEM 421 sensor on a sled behind a vehicle over a fallow or cut block. The DualEM 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.



Q: Why should I EM map my blocks?

Herbert soils are highly variable. 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.

Q: When can I get my block mapped?

Aim to contact HCPSL 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.

Getting the most out of your EM map

Reading and interpreting your map

EM maps produced by HCPSL typically come as two PDF's displaying different zones across each of the six measurement depths as individual colour blocks. EM surveys undertaken on different dates are not directly compatible due to changes in soil moisture and temperature.

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.

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.



For more information on EM mapping contact:

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