



# EM: A DECISION SUPPORT TOOL

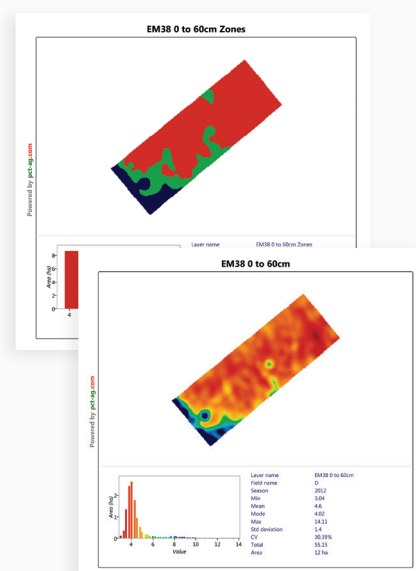


## EM SURVEY AS A POWERFUL MANAGEMENT TOOL:

Once Agri Optics has completed an EM survey, you will receive a full EM Survey report. This will include EM maps for the two soil depths (50cm and 125cm), and maps where the EM values are grouped into zones. This makes the variability easier to see, and can be used for prescription application maps. The additional landscape mapping package adds another dimension to the data set with extra maps illustrating the 3D landscape of the surveyed area.

So, what can EM survey data be used for?

- Managing water, from irrigation priorities to variable rate irrigation
- Creating a grid soil sampling plan for soil sampling in predominant soil zones, allowing you to apply fertiliser according to nutrient results in these zones
- Improving yields and pasture performance where soil characteristics are limiting factors
- Managing your inputs more sustainably with targeted placement
- Reducing environmental impact by eliminating potential dangers and reducing risks



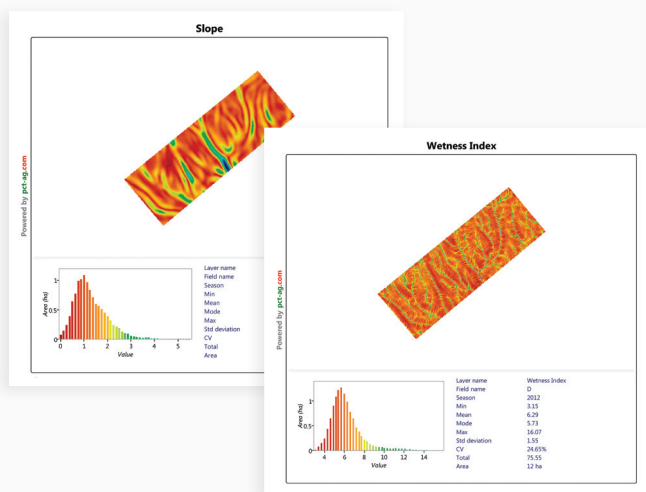
## WATER MANAGEMENT:

The EM survey is a useful tool for water management decisions. It illustrates the relative variability in characteristics of soils including the soil texture and related water holding properties within an area. Along with the topography report this can help with more efficient water and nutrient use to minimize potential leaching issues. It can:

- Show you if there is enough variability to invest in variable rate irrigation
- Allow you to see if variation can be managed by paddock or in blocks on the whole or part of the farm
- Highlight the best place to put your soil moisture probes
- Be used to create variable rate irrigation maps to reduce daily water usage on a specific area, potentially meaning your water could last longer into the season or freeing you up to use the water elsewhere, thus aiding with consent restrictions
- Illustrate where water will move to and from after a rain or irrigation event
- Help mitigate nutrient run off and avoid short or long term ponding in certain areas
- Help with crop rotation management and irrigation timings



## WATER MANAGEMENT cont.



The above wetness index map shows the direction of water flow in the mapped area from irrigation or a rain event; with water running from the red to blue. The Slope map above is measured in percent (%) slope. Areas of high slope can be seen running across the map in green/blue fingers. These high slope areas have an increased likelihood of shedding water and nutrients.

## MULTIPLE USES

Creating management zones and identifying soil characteristics within these zones allows the fine tuning of site specific inputs to match in field requirements. This enables you to:

- Reduce fertiliser and lime expenditure – reducing soil nutrient variability, leading to more sustainable placement
- Improve yields and pasture performance where soil nutrients are limiting factors
- Use the zones in conjunction with yield data or Greenseeker® (canopy mapping) for more informed decision making
- Possess tools of accountability and traceability, which going forward will become very important requisites of farming best practice
- Reduce environmental impact by eliminating application to areas where soil nutrients are already high
- Return to the same GPS coordinates in the future to monitor the effects of rates and management practices
- Tailor cultivation methods to different blocks or zones combined with/or varying seed rates

## SUMMARY

- The EM layers are predominantly used to determine the zones to be used for management of variable rate inputs
- The more information we have available, the better informed our management plans and decisions can be. This leads to more efficient and effectively targeted recommendations and more accurate applications, saving money, time and fostering more sustainable environmental practices. An EM survey is an important tool in that decision making process.
- Combining topography layers with EM maps builds a greater understanding of the potential risks of water ponding or water shedding within the surveyed area.
- The topography layers can be very useful in determining areas that might need to be managed in a different way rather than only in accordance with soil type, which is a useful management tool to reduce potential nutrient leaching

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