SUSTAINABLE SUCCESS STORIES

Using soil monitoring equipment in intensive horticulture production

Sustainable Success Stories showcase how the Adelaide and Mount Lofty Ranges NRM is working with industry to improve production outcomes in the South Australian vegetable industry.

For this case study AUSVEG SA reports on expert interviews with representatives from Measurement Engineering Australia (MEA) on the appropriate use of soil monitoring equipment in vegetable production.

Soil monitoring use in intensive horticulture production

Traditionally there has been resistance to using latest soil monitoring in intensive horticulture production, especially annual crops. In some cases, the integration of technology has been seen as a complication within a business or growers have had bad experiences with prior technologies which required manual reading and data entry.

In recent years, however, many growers have seen the benefits of using automated soil monitoring equipment to finetune their irrigation programmes and use technology to minimise water waste and achieve better, more resilient crops. At a time where water costs continue to rise across Australia, it is more important than ever that growers consider water efficiency as part of their business.

Soil monitoring equipment is another potential tool in the armoury to better manage this vital resource and produce better crops. This is especially important given that vegetable crops are sometimes over watered.

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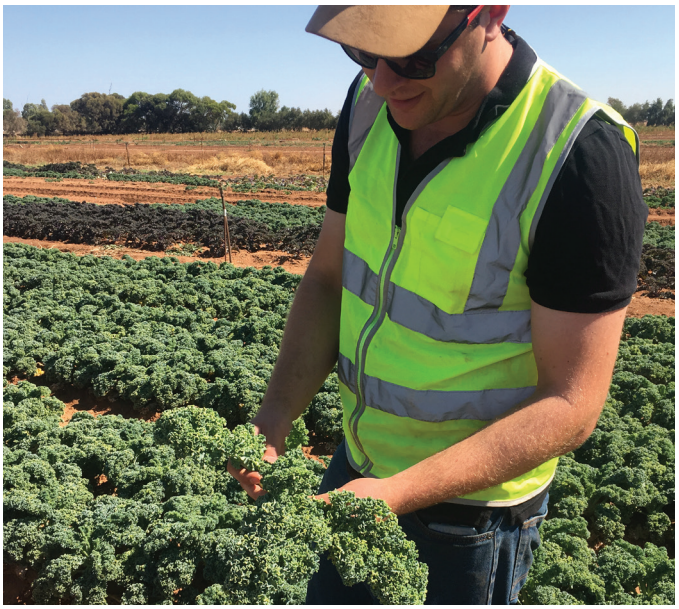
How can we make soil monitoring more accessible to growers?

In the past, soil monitoring equipment was cumbersome and difficult to use for growers, requiring manual reading and data entry or downloads to laptops as well as frequent maintenance. In a busy horticultural business, which is required to manage complex processes such as quality assurance and a large workforce this was seen as another impost for business, rather than a help.

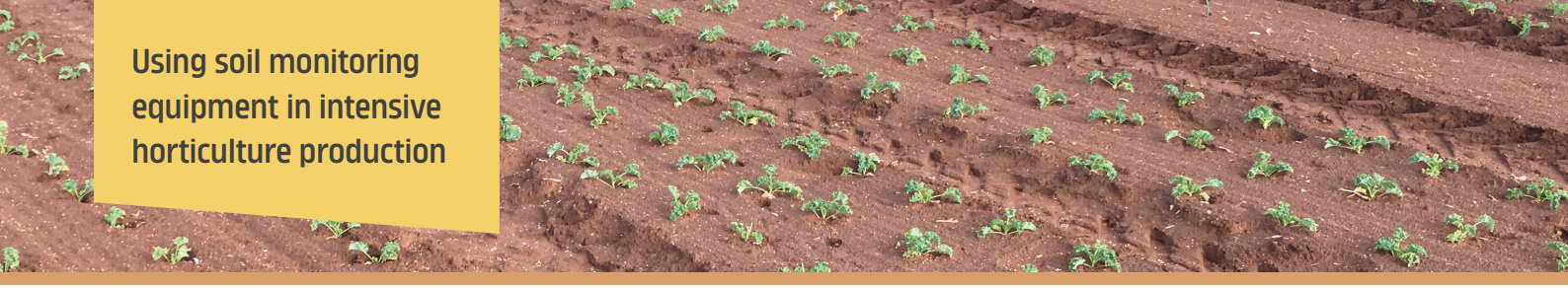
The modern technology, however, has become much more accessible and has been successfully implemented on medium and large scale horticultural businesses throughout Australia. Data collection and information is collected automatically in modern systems and sent to a smart phone allowing the grower to make immediate decisions on irrigation without the need for additional manual reading work and data entries. In addition, work is currently being done to automatically integrate regional weather data into the newer systems, with the more high end systems containing their own weather stations.

As such, the technology has now become sufficiently accessible and reliable to be effectively used in intensive horticultural production.



The benefits of using soil monitoring equipment to guide irrigation practices

- Using monitoring equipment offers an exact way of knowing when to and how long to irrigate to prevent over watering to improve water use efficiency and manage issues such as salinity and a rising water table.
- Feedback from growers using these systems is that they are getting a higher quality crop by ensuring they vary their watering based on the weather.
- Use of monitoring can prevent the through-drainage and leaching of fertiliser and other crop inputs
- There are benefits of being able to demonstrate to customers, supply chain partners and government authorities that water is being used in a responsible way within a business.
- Growers can effectively prevent water waste within a business and eliminate water use which does not contribute to crop health or marketable yield.
- Oil monitoring offers a business a better understanding of water use patterns within a business for forecasting reasons.



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Soil monitoring in action

Soil monitoring equipment is becoming more widespread within industry as an important decision making tool for growers. AUSVEG SA and the Adelaide and Mt Lofty Ranges NRM Board demonstrated the benefits of soil monitoring equipment as part of trials into advanced compost use run on the Northern Adelaide Plains in early 2019. Soil monitoring equipment was used to effectively manage irrigation to ensure water needs were matched to crop requirements and to ensure that irrigation did not increase salinity issues on the property. As part of the trial, held at Thorndon Park Produce, through the application of compost, strategic irrigation and controlled traffic farming principles the business was able to reduce the impacts of irrigation water salinity in the crop and achieve exceptional quality results. The key findings of this trial are outlined in a separate Sustainable Success Stories Case Study featuring the trial. The soil moisture probes showed that compost use reduced the need for irrigation.

Key practice changes

Implementation of soil monitoring equipment has a cost in terms of materials and time, and training for a business, however, it has achieved positive results for growers who implement these systems properly. Growers who use soil monitoring equipment often find that they irrigate more frequently with less water and adapt their irrigation approach more regularly depending on the weather and plant water uptake.

Background on Sustainable Success Stories

AUSVEG SA and the AMLR NRM board wanted to highlight the significant trial work and innovation which has occurred in the Northern Adelaide Plains over the past few years as a means of highlighting the growers who have made significant advances in improving the sustainability and efficiency of their practices.

Background on our partnership

AUSVEG SA and the Adelaide and Mount Lofty NRM Board have partnered for a number of years to deliver extension activities and activities which highlight and support the adoption and promotion of sustainable practices in the intensive horticulture industry throughout the Northern Adelaide Plains region. The Northern Adelaide Plains is one of the most prominent horticulture regions in Australia and produces over $500 million in horticulture per annum at the farm gate with key crops including greenhouse produce, potatoes, onions and other vegetable crops.

AUSVEG SA and AMLR NRM have had a strong working relationship in a number of areas and have conducted significant work together in areas such as Integrated Pest Management extension and trials, advanced compost use, biosecurity practice change and weed management over the past years.

Further information

The projects outlined in this case study were delivered by AUSVEG SA in partnership with the Adelaide and Mount Lofty NRM Board and national Soil Wealth and ICP project.

AUSVEG SA and the AMLR NRM have a number of resources and programs designed to assist South Australian horticulture producers to improve their practices and any interested growers can contact Jordan Brooke-Barnett, AUSVEG SA CEO on 0404 772 308 or Jordan.brooke-barnett@ausveg.com.au to discuss programs and opportunities.

Images have been provided by AUSVEG.