Agronomic Comment on Hydrosmart for Growing Grapes

Cunnamulla QLD, Season 2013-14

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There are just two tablegrape vineyards located in the vicinity of the western Queensland town of Cunnamulla and they are side by side and irrigate from the same point from the Warrego River. They are predominantly growing the Menindee seedless variety with the same rootstock, trellis design and drip irrigation system. During regular farm visits to the region in February 2013 I noticed a rapid deterioration in the vine health on both vineyards. It did not appear to reflect the differing fertiliser programs between the two and so I assumed it was a regional issue. Soil nutritional tests were checked and the results showed high levels of potassium and zinc, both visibly very low in the vine leaves. The pH levels had dramatically risen to the high 8's over the season and calcium carbonate was visible on the drip emitters and hydraulic tubing at valve points. Tests on the Warrego River water quality showed EC of 2600 but the most dramatic issue appeared to be the high sodium carbonates and bi-carbonates similarly emanating from both the River and bore water sources.

Panel A - Hydrosmart Unit Installed at J Biggs Vineyard, Cunnamulla. Panel B – Hydrosmart treated Menindee vines during the sizing phase are full, actively growing and healthy.

Upon seeing this I advised both vineyard owners to consider installing a Hydrosmart unit to treat their water used for foliar spray applications and irrigation. One of the owners was in a position to do so

rapidly and installed it in such a way to enable treatment of both the bore and river water being added to a new farm storage dam.

On farm results were startling over the season on the vineyard using the Hydrosmart when compared with the other vineyard:

- crusty carbonate deposits on valves, hydraulic tubing and the drip emitters reduced significantly over several months
- the vines maintained a full, actively growing canopy and were visibly nutritionally healthy compared with the slowed growing tips and visible K, Zn and Ca deficiencies next door
- noticing the poorer canopy growth on the untreated farm lead to the application of more than double the NPK, Ca & Mg base fertiliser along with nearly 2.5 times the irrigation water volume and even then it still had much weaker canopy development and corresponding bunch development
- the efficiency of the applied irrigation and fertiliser in terms of its uptake value was far higher when using Hydrosmart treated water and therefore application levels were not raised
- petiole levels of Ca and K in the treated vines was significantly higher resulting in harder, heavier fruit. Importantly this helped offset the negative effects of a late rain in the season. The untreated farm suffered heavily from bunch stem necrosis and lost considerable (30+%) fruit, increased harvest costs to clean out damaged berries and prices suffered with the lower quality
- Post harvest the treated vines continued to grow and the replacement cane quality will be very good for the upcoming season. The untreated vines deteriorated quickly and shed a large percentage of their leaves immediately after harvest. Their canes are short and crop levels limited by lower bud numbers and poor carbohydrate accumulation over Winter

In situations of low water availability in the Murray Darling Basin issues of salinity, pH and carbonates are an ongoing challenge. The Hydrosmart offers a cost effective means of limiting the damage caused to farms by drought induced low water quality. It assists greatly in maintaining the crop and infrastructure in a commercially viable state.

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