BioRevolution, manufacturer of Crop4Life biostimulant

Biostimulant could be answer to the Cape clementine conundrum

© BiorevolutionIn the Western Cape, many clementine orchards are on the chopping block: the fruit is not ripening and colouring quickly enough. "There's big pressure to pick and pack clementines earlier, before the price drops.

Right: clementines in a C4L trial on colour development run by Biorevolution and Denau

Producers in later ripening areas like the Western Cape, where Nules are picked sometimes well into June, and the fruit only gets to market when price has plummeted, are considering getting rid of those orchards," says Stefan Hattingh, technical sales manager at Bio Revolution, which manufactures a single biostimulant called Crop4Life, or C4L.

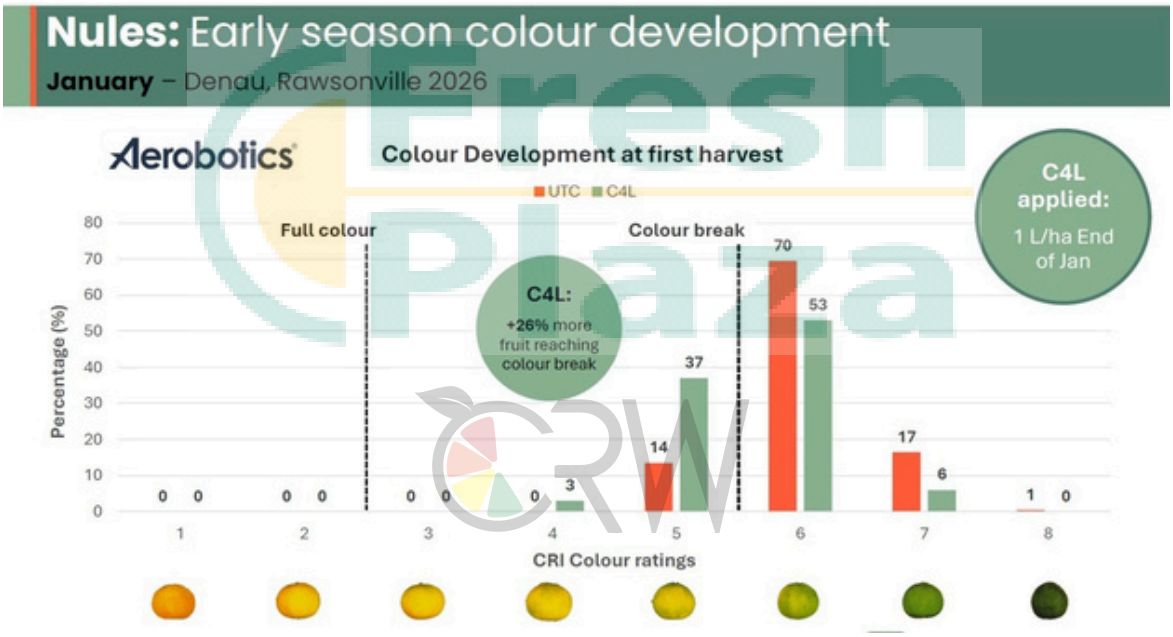
It bills itself as the leading biostimulant that South Africa trusts. The biostimulant is among the longest on South Africa's market, and it has widened in use to all of the fruit-producing areas in the country. In fact, says MD Johan Kotze, he's not heard of a single case where a grower has gone back to a programme that includes no biostimulants. It is among the sectors in the agricultural ecosystem with the highest growth at the moment.

BioRevolution prides itself on the reams of data it has behind its flagship product. Buyers in Australia and the UK will soon be able to join users of the product in the USA, Türkiye and India. Hein Gerber, director at Biorevolution, observes that pressure on the citrus industry from the European Union in terms of soil biology and nutrient use efficiency will increase.

And then there is the increasingly fraught access to synthetic fertilisers. "As of now you can't be farming without biostimulants anymore, for a number of reasons, but chief among them also the challenges around overfertilisation."

Quickening the colouring

The Biorevolution team applied their minds to the Cape clementine question with the help of grower-exporter Denau. Three irrigation blocks planted with Nules clementines were divided into two control blocks on either side of a C4L-treated strip of one hectare each on Lorraine farm outside Rawsonville.

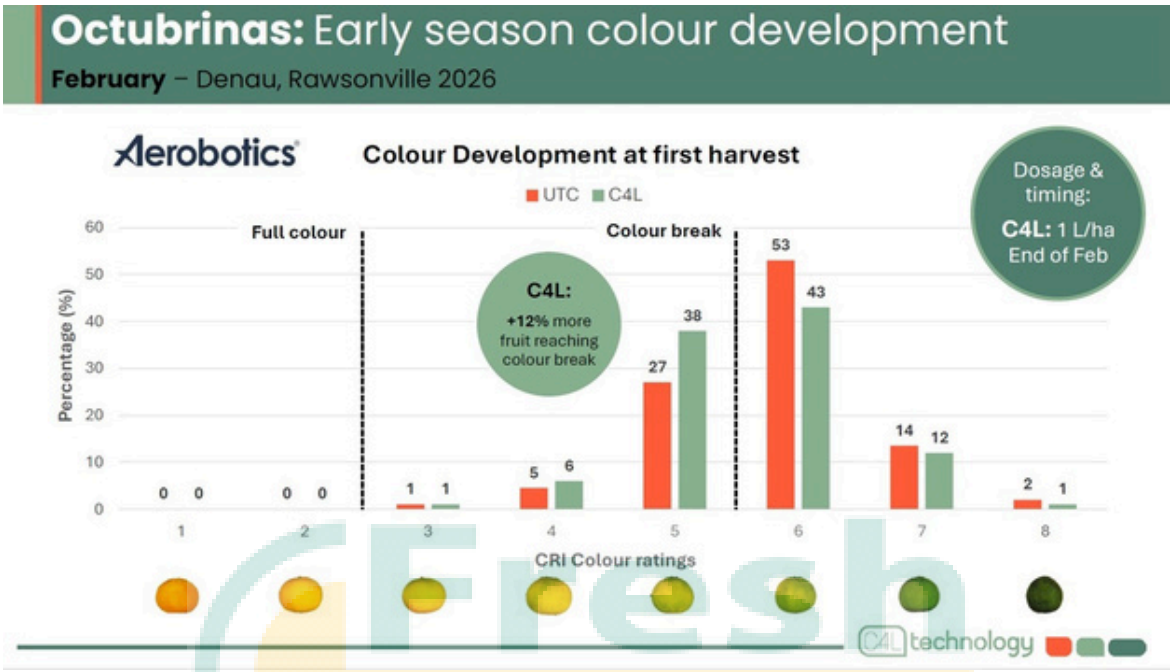


© Biorevolution *There's a big marketing benefit to picking clementines early*

Each treated strip was sprayed with one litre of C4L at the end of January; the next strip in the second irrigation block was sprayed the next month, and the last treated strip in end-March. From the results, they established that the early season spray (end of January) constantly showed more advanced colour development over the untreated control. Having a quarter more Nules fruit ready to be picked, early in the season, more than from the control block is a compelling argument to reconsider the removal of such orchards.

They did the same on Octubrinas on the same farm, Hattingh recounts, and there too more marketable fruit was available earlier in the season. Equally welcome news to Denau was the 20% more fruit measuring in the 2, 1 and 1X categories after a late January C4L application.

"With the spray we did at the end of January, I could clearly see differences in fruit size between the Octubrina blocks and we're excited about the opportunities opened up by earlier colour development," says Erhard Marais, Denau production manager on Lorraine Farm, adding that C4L propelled the treated block to an earlier window which will bring with it "a big benefit in the market."



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The trial data was captured, analysed and evaluated by Aerobotics' TrueFruit software: it photographed and automatically sorted the Nules clementines and Octubrinas according to colour (based on Citrus Research International colour ratings) and size. "The TrueFruit app enabled us to considerably enlarge our test samples and the software produces objective results – these findings aren't just as viewed through a C4L lens," adds Berné Grobler, BioRevolution's field trials coordinator.

"The results have confirmed what we see in terms of colour development on late mandarins as well," Hattingh remarks.

"We are the solution to citrus rind creasing"

Colour improvement after C4L treatment is well-asserted by the data they've amassed after twenty years of use in South Africa's fruit industry, across many tree crops. Crimson grapes, for example, notoriously difficult to colour, are these days routinely treated with C4L, and it's used to get more pigment into blush pears and stone fruit.

But the effect of this organically-certified biostimulant is more than skin deep. "C4L has a big impact on cell wall synthesis, and we're seeing a great amplification of cell wall strength," Gerber says. Take bitter pit in apple, Kotze points out. "Some

growers have to run through between six and fourteen foliar applications of calcium in a season. Calcium doesn't really move within the plant, and that's why they have to repeat it so often."

Gerber adds: "When used as part of a structured C4L programme, producers have recorded up to a 27% increase in calcium levels in fruit. Although C4L does not contain calcium, it supports calcium uptake and translocation within the plant, improving the efficiency with which applied calcium is absorbed, transported and utilised."

C4L's action is in revving up the Krebs cycle, which releases more energy for the production and release of root exudates to its partners in the soil. On citrus peel splitting, they believe they are the answer, and many of the big names in the industry include the C4L biostimulant in their applications, which they've refined to granular level over twenty years. "We can tell a grower precisely," Gerber explains. "For colour, spray at this time, at this dosage; for juice content, spray this time, this dosage, and so forth."

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Biorevolution's Cultigrow (CG) contains the same formulation also sold under brand names Crop4Life (C4L) and CropBioLife)

And change the formulation, these same four plant extracts constitute a surface sanitizer which acts as a natural, organic-compliant preservative in kelp-based and other biological formulations. Biorevolution is currently working with several kelp manufacturers and formulators, both locally and internationally. "This is not a shot in the dark," Kotze concludes. "Nothing about it is incidental. We link the dots;

we know which phenological stages are optimal for applications that yield the best outcome. Over twenty years, the product has been tested on over 48 crops with a focus on tree crops."

For more information:

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