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Bragato Research Institute Reports Higher Yields From New Vine Training Systems in Marlborough Trials

First season results show innovative canopy methods boost grape production without sacrificing quality in New Zealand’s flagship Sauvignon blanc.

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The Next Generation Viticulture (NGV) program, led by the Bragato Research Institute, has released its first season results from trials in Marlborough, New Zealand. The program began its first growing season in September 2024, after establishing trial sites across seven vineyard blocks in the region. The main goal is to improve vineyard profitability by testing innovative canopy training systems that could reduce operational costs, increase yield consistency, and maintain or enhance the quality of premium New Zealand wine.

The NGV trials are evaluating three alternative vine training systems—six vertical cordons (6V), nine vertical cordons (9V), and twelve vertical cordons (12V)—against the standard commercial system used at each site. The standard system varies between 2-cane, 3-cane, or 4-cane-trained vines with 1.8-meter spacing. Most trial sites are planted with Sauvignon blanc, New Zealand's flagship grape variety. The sites were chosen to represent a range of climates, soils, grape varieties, and management styles found in Marlborough.

For clarity, the current report focuses on two sites: Indevin Toi Downs (Awatere) and Paul's Road Whitehaven (Rapaura), both planted with Sauvignon blanc. The results cover vegetative growth before veraison, berry maturity, yield, and vine balance.

The new training systems allowed for more nodes per vine during pruning. For example, when compared to a 4-cane control system, the number of retained nodes increased by factors of 2 for 6V, 3 for 9V, and 4 for 12V. At the Rapaura site with a 2-cane control system, these increases were even greater. Across most sites, vines trained with the 6V system developed their leaf area faster after budburst until mid-December. These vines had more shoots per meter of row and a greater total leaf area than controls, which could improve sunlight interception early in the season.

Shoot morphology was also affected by the training system. Shoots on 6V vines were shorter and had fewer and smaller leaves compared to controls. Lateral shoots—an indicator of vigorous growth—were less prevalent on 6V vines despite their higher shoot count. This suggests that the new systems may help moderate excessive vine vigor and reduce the need for labor-intensive canopy management tasks like trimming and leaf plucking.

Yield data showed that all three new training systems produced higher yields than controls. Increases ranged from 16% to 62% for 6V vines, 35% to 55% for 9V vines, and 32% to 65% for 12V vines. The main reason was a higher number of bunches per vine and per meter of row in the NGV treatments. However, control vines had heavier bunches with more berries per bunch and larger individual berries.

Sugar accumulation rates varied among treatments. Control vines accumulated sugar fastest; however, the delay in ripening for 6V vines was generally only a few days and rarely exceeded two weeks. At Rapaura, when both control and 6V were harvested on the same day, sugar concentration differed by less than one degree Brix—a measure of grape sugar content important for winemaking. At Awatere, a harvest delay of twelve days between control and 6V resulted in similar sugar levels at harvest.

Acidity (measured as titratable acidity) declined at similar rates across all treatments within each site. pH levels increased more slowly with larger vine size at Awatere but showed little difference at Rapaura.

Dormancy measurements showed that control vines produced longer canes with more nodes and thicker wood than NGV-treated vines. However, annual vine vigor—measured as total cane mass—was similar between control and 6V at most sites. Control vines also had more dormant wood removed during pruning (over 90%) compared to about 50% for NGV treatments. This difference could affect carbohydrate reserves needed for early spring growth.

Source-sink ratios—specifically exposed leaf area to fruit mass (ELA/FM) and total leaf area to fruit mass (TLA/FM)—were highest in control vines. These ratios are linked to how efficiently vines ripen fruit. At Rapaura, even with slightly lower ELA/FM ratios, 6V vines achieved similar sugar concentrations as controls. Treatments with ELA/FM below 0.6 m^2/kg required more time to reach target sugar levels or did not reach them at all during this high-yielding season.

The first season’s results indicate that new training systems can increase shoot numbers and speed up canopy development early in the season without compromising key aspects of grape maturity or quality at most sites. The systems also appear to moderate excessive vigor while increasing yield potential—a key goal of the NGV

program aimed at reducing labor costs associated with canopy management.

As these alternative systems continue to develop—especially the larger-scale 9V and 12V treatments—the research team will monitor grape composition and wine quality closely to ensure that increased yields do not come at the expense of New Zealand’s reputation for premium wine production. Further results on winemaking outcomes will be reported in future updates from the Bragato Research Institute team.