Title: Managing vigor of blackberry with prohexadione calcium: Effects on primocane and floricane development

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Public Abstract:

Primocane growth management of blackberry by commercial growers relies on summer pruning/tipping primocanes at multiple heights throughout the growing season. Tipping can increase lateral branch development, bearing surface, and subsequent yields. However, tipping is a labor intensive and expensive process (~$600 per acre) that increases risk of cane blight infection. If effective, chemical management of blackberry primocane growth could reduce labor inputs associated with manual summer pruning/tipping, reduce incidence of cane blight due to manual summer pruning, and reduce the number of fungicide applications for managing cane blight. We investigated use of a plant growth regulator, prohexadione calcium (P-Ca), as an alternative growth management strategy of floricane-fruiting blackberry. P-Ca consistently reduced plant height (~30%) for consecutive years on ‘Osage’ and ‘Von’ blackberry. Compared to a control, P-Ca reduced internodal length by 38% and increased node number per cane by 16%. However, lateral branch number was reduced with P-Ca by 32%. In 2018, yield and fruit quality attributes were not negatively influenced. However, in 2019 yield and fruit weight was reduced with P-Ca (22% and 11% respectively). While P-Ca shows promise as an alternative to reduce primocane height, this practice would likely need to be augmented with practices to enhance fruiting lateral number and subsequent productivity. While P-Ca application patterns should be refined to determine if negative impacts on yield can be avoided, continued evaluation of chemical and/or cultural practices to enhance lateral branch development and reproductive potential should also occur. Combinations of P-Ca and techniques to increase lateral branching would have merit in future research.