

Season extension of subtropical blackberry production by chemical induction of defoliation and bud break

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Blackberry is currently expanding to new production areas worldwide, but the production is limited in subtropical regions. In Florida, the main challenge is the inadequate winter chilling in mild winter that causes poor and ununiform flower bud break. In addition, high rainfall during the fruit ripening period adversely affects fruit quality. We performed two field experiments to examine bud break induction effects of two defoliant, urea and lime sulfur, on 'Natchez' blackberry plants grown in the open field in central Florida. Defoliant were sprayed at 10% (wt/wt) with a spray volume of 1871 L/ha on 27 December 2018 and 19 February 2019. All ripe fruits were harvested at 3-4 d intervals between 4 April and 14 June 2019. All treatments accelerated defoliation to a similar extent, but the effects on bud break and yield varied. Urea application in late December did not increase the final bud break percentage and the total yield compared to the control, but it accelerated bud break and advanced fruit ripening by one month. Lime sulfur application in mid-February increased the final bud break percentage from 32% to 76%, resulting in a 60% yield increase compared to the control. These results suggest that urea applied at the beginning of chilling accumulation (late December) is highly effective in increasing early-season yields (April), whereas lime sulfur applied after chilling accumulation (mid-February) can maximize bud break and fruit yields. By scheduling the application of urea and lime sulfur at their optimal timings, season extension of subtropical blackberry production by up to 1.5 months is feasible.