Uniconazole-P is used in ‘Hass’ avocado production to stop vegetative shoot growth at the apex of indeterminate floral shoots to increase fruit set and yield and after pruning to maintain tree size, especially in high-density plantings. Uniconazole-P has the potential to reduce pruning costs, but also to reduce fruit size and increase fruit drop. Depending on crop load, reducing vegetative shoot growth in spring or summer could mitigate or initiate alternate bearing. The objectives were to determine the effectiveness of a new formulation of Uniconazole-P developed for use in California to stop shoot growth (i.e., what proportion of shoots stop growing and for how long) when applied in spring, summer, fall or winter and to determine its effects on yield, including fruit size. Consistent with its role as a GA biosynthesis inhibitor, summer-applied Uniconazole-P had a greater effect on internode elongation (~4 weeks) than on production of new nodes by the apical meristem (~2 weeks). At the end of 8 weeks, shoot length was reduced by up to 4 cm, compared to untreated controls, but results were inconsistent. Fall-applied Uniconazole-P produced similar results at the end of 8 weeks in both orchards reducing shoot growth by 2 cm or less. Winter treatments significantly reduced shoot growth for all shoots from week 8 through 12. Net reduction in length was ≤ 2 nodes and ≤ 4 cm relative to the untreated control. In contrast to the summer and fall applications, the winter application had a greater effect on shoot apical meristem growth than internode elongation.