

Implementation of the use of NAA as a tree management tool for the California Avocado Industry

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The California Avocado Commission (CAC) working with AMVAC Chemical Corporation recently obtained a Section 18 registration for TreHold A-112 for bearing and non-bearing trees. This registration was sought following review of the promising preliminary results of Arpaia et al (2007) and subsequent work by David Holden under contract during the IR-4 registration process.

Arpaia et al (2007) outlined three potential uses for this plant growth regulator to assist California growers control vegetative vigor: as a trunk sprout inhibitor following stumping, as a tool to maintain tree height and as a control strategy during shoot tip pruning. Each of these use strategies requires good judgment on the part of the grower utilizing the material. In order for this product to be used successfully by the California avocado industry it is imperative that trials be established to demonstrate to the use of this product. Given the potent anti-sprouting effect of this plant growth regulator over-application of the product could result in unwanted results. This could negatively impact the perception of this material and limit its use. It is important, therefore that trials be established to provide a forum for discussion amongst growers and to provide a venue to view the positive aspects of this product.

This project proposed to establish regional research plots to demonstrate the use of TreHold A-112 as well as collect data for further documentation of this product's efficacy. It is also important to document the longevity of the product's effect on vegetative growth, something that was not done in previous work. The project leader is working with the county advisors to identify potential collaborators to establish plots that can be used for these purposes. Each collaborator will need to be willing to allow fellow growers on their properties for four purposes. A key component of this project is grower meetings at the demonstration sites in the Fall and Spring of each year. The purpose of these meetings will be to show the response of avocado trees to various applications of NAA as well as to discuss tree management strategies. As we collect results, we will also post pictures and collected data on the web. Most likely, this will be www.ucavo.ucr.edu.

Progress on this project has been slower than planned. Part of the delay was waiting for the Section 18 for the material to be extended, which occurred in mid-April 2010. Following a planning meeting in Ventura in March 2010, it was decided to only examine the efficacy of the material used as a sprout inhibitor to topped trees to maintain tree height. We agreed on a standard protocol: 15 treated trees and 15 controls with the idea of treating both in the spring and another group of trees in the fall 2010. We have also agreed to standardize the brand and type of Latex to use to mix with the product. The paint (a water-based latex paint) will be purchased separately and mixed as per label directions and made up to 1 gallon of water. This will be done just prior to treating the limbs. For the controls, we will use the 30 oz. of latex paint made up to 1 gallon of water. The amount of material to be applied will depend on the average diameter of the branches in the experimental block.

A site was identified in Ventura County and the material was applied in May 2010. A site in Bonsall (San Diego County) was also selected and the application was made on July 7. Applications were not made in either Riverside or San Luis Obispo counties for a variety of reasons. We hope to have the project back on track by Spring 2011.

The Bonsall site has provided interesting data thus far. Growth measurements 12 inches below the application area were taken approximately 60 days following treatment. In the untreated control, there was an average of 8.3 shoots per branch growing out below the cut. These averaged 17.8 inches in length but ranged from 0 to 41 inches in length. In the NAA treated trees there was virtually no growth in the 12 inches below the treated area. In the 45 branches treated (branches per tree) there were only 5 shoots growing in the measure area. These 5 branches averaged 13 inches in length but ranged from 12 to 21 inches.

We have discovered, as previously observed in a preliminary trial in San Luis Obispo and the trial in San Diego, that the material is very "runny" and tends to run down the branch when applying the material. This difficult is confounded when the branches to be treated are not within each reach. For the material to be successful, we believe that an improved application method needs to be developed.

These preliminary results along with the data from the Ventura county site corroborate data collected previously in San Diego County that NAA, if used properly, can be a tool to manage vegetative vigor following tree topping/pruning.