

## Vita Planta Preventative Disease Program

Vita Booster – Florida

Vita Planta Pro Certified

## Location:

GFC – Key Grove

## Problem:

Continued spread of Greening Disease and Canker

Bacteria spread by insect vectors

Environmental factors as influenced by previous effects of Hurricane season

## Method:

Randomly select four sets of trees (three trees per set).

One set of trees to have established Greening Disease

One set of trees to have established Canker

One set of trees to be healthy and unaffected by Greening Disease or Canker

One set of healthy trees to be used as a comparison standard

One gallon of Vita Products in test makes 2,000 gallons of spray

One ounce equals fifteen gallons of spray

Two ounces of Vita per thirty gallon tank.

Each tree will be sprayed with 30 gallons of Vita Booster on the leaf canopy, mixed at a rate of 1 oz of Booster per 15 gallons of spray mixture (2 oz per 30 gallon application). Then, 30 gallons of Vita Planta Pro Certified sprayed around the tree (three feet from the trunk out to the drip line) to be absorbed via the root structure, at the 1 oz per 15 gallons mixture.

The spray application will continue once a week for seven weeks.

Irrigation cycle should continue to ensure that a watering is done within 24 hours after spray application.

Fertilization cycle should remain unchanged.

## Goals:

Look for Greening Disease trees to develop new growth in the limb and leaf structure and enhanced "Vigor", health of the tree.

New fruit to be symmetric and normal tasting.

Canker trees to grow Canker free new fruit

Healthy test trees to sprout a higher density of blossoms

## Orange Grove Project

April – July 2006

Fort Myers, FL Citrus Grove

The reason for the test was to determine if the proper application of the Vita product could prevent, delay or contain the effects of Canker, Greening disease, limit the effect of bacteria spread by insect vectors and help limit the effects of physical trunk/limb damages.

The Fort Myers area Citrus Groves were extensively exposed to the effects of four hurricanes during the 2005 hurricane season. The results of those storms were a highly stressed Citrus trees that were very susceptible to various diseases in this weakened condition. The initial protocol was to address two prevalent issues. Canker, and Greening disease.

The agreed to proposal consisted of three sets of three test trees groups focused on one area of concern located at least 1,000 feet apart from each other. One test group was to concentrate on the Canker disease, one group for Greening disease, and one group of healthy non afflicted trees as a comparison standard.\* The equipment for this test was also delineated.

This Citrus Grove has a typical soil composition of a highly alkaline sandy mix. Each tree received water via a Grove wide soaker system and nozzle assembly. The water source came from the high water table in the Florida soils.

## April 24 2006

Spray was set-up for Monday the 24th of April. Conditions were dry, temperature low 80's. I arrived at 8:00am to meet with the Owner and staff. I introduced the Vita product and discussed how the spray was to be conducted. I was notified by the owner that the required equipment needs would not be satisfied. The only spray device available was a thirty gallon sprayer mounted on a Gator utility truck that sprayed fluid at a rate of 1.5 to 2.5 gallons per minute. The protocol would not be met since there would be no Greening disease trees available. Dedicated labor was not a priority. Clearly this did not meet the agreed to protocol. The decision to continue the test was in balance because the protocol was compromised and set up for failure.

I proceeded with the test, with adjustments. The test was now adjusted to spray individual trees, two trees for Canker, one tree for Blight, one "Buckhorn" tree for growth rate, and one Hurricane damaged tree for re-growth. The randomness of tree selection was also out of my control; trees were selected by the owner. At this point the intent of the spray was to test the concept of the protocol and results. Information to be gained will serve as a foundation for future funded research. The first actual spray was to be conducted by Field Supervisor, Pancho and myself. The spray protocol called for one spray a week for eight weeks.

The spray was conducted using the 30 gallon spray tank for foliar and systemic applications. This equipment configuration resulted in a long slow application. Thirty gallons of Florida Booster on the canopy and thirty gallons of Pro Certified on the trunk out to the drip-line was the established protocol. The Canker tree was selected and showed little to moderate effects of canker pitting on leaves. No fruit was visible on the selected trees at this time. The trunk of these trees were fully covered with green moss?(1)

The Buckhorn stump was bare of leaves and branches and stood about two feet tall. Clean trunk. (2)

The hurricane damaged tree was pushed over by the hurricane from the previous season. The tree endured some root damage and was secured to the vertical by three guide ropes. Some base feed roots were exposed to the surface. (3)

The blight affected tree had sparse of leaf growth compared to unaffected trees. (4) All trees were watered daily with a drip system and a spray system located at the base of each tree.

After four hours of spray application the first Vita application was complete. If proper equipment was used as requested, this spray could have been completed in one hour with full coverage.

## May 01 2006

Phone call update from Poncho, on the status of the second spray and results indicated observed fuller greening of leaves on all trees in the test with foliage. No reported impressions about the Buckhorn tree.

## May 08 2006

I conducted the third scheduled spray on the 8th of May. The temperature at the start of the spray (11:00 am) was 78 degrees rising to 82 degrees by completion. Dry, clear, calm day.

## Observations:

The Canker tree has a nice full canopy with new growth of branches and leaves. Fruit blossoms at this point have all matured into actual fruit. Trunk is clean without any moss on sprayed side. (5)

The Buckhorn stump has a large growth of leaves and blossoms. Thirty percent of leaves are five inches long, four inches wide. Numerous blossoms, no visible insects. (6)

The Hurricane damaged tree showed extensive new growth. Fruit is ripe but hasn't been harvested from this tree yet. (7) The Blight afflicted tree showed extensive new growth greater than non-sprayed blight tree in the same vicinity. This tree was showing the development of new fruit transitioning from blossoms to fruit. (8)

The Owner was concerned about the amount of time used for this spray, due to the equipment dedicated to this test. A new pump was installed on this spray rig to improve spray volume.

## May 15 2006

Poncho and the owner gave no update this week. Four sprays applications have been scheduled by this time.

## May 22 2006

Owner to conduct fifth spray by this time. I visited the grove on this date for an observation.

Canker tree showing extensive healthy fruit development and new growth on the canopy. Trunk remains clean of green fungi. (9)

Buckhorn leaves appear to have brown discolorization in the surface and cupping of leaves, minimal insect activity compared to other buckhorns that are totally covered with insect activity. The tree leaves appear to be a little inconsistent with previous healthy progress. One branch has turned brown. Blossoms continue to bud. (10)

Hurricane damaged tree has had the fruit removed and continue to display new growth. (11)

Blight tree continue to show new growth with a small number of fruit but more than non-sprayed trees in the vicinity. (12)

All three of the four test groups show continued expected results on track with previous improvement. Buckhorn tree results may indicate lack of spray protocol.

## May 29 2006

Sixth spray application conducted by Owner. No communications with the owner. The owner didn't return phone calls for status update of progress on the field test.

## June 7th 2006

In conversation with Poncho, we decided to continue the spray protocol for two more applications because we had plenty of Vita spray remaining. Seventh spray today.

## June 12th 2006

Eighth and final spray.

## June 19th through June 30th 2006

The Owner says that there was no appreciable change to the spray trees and disclosed that the trees would be cut down to the buckhorn height as a part of the Canker response program.

## July 3rd 2006

I flew down to the test grove to look at the test trees and document the results. The Canker test tree showed extensive new growth and a healthy crop of grapefruit that didn't show the signs of Canker on the fruit. Trees all around this test tree had extensive canker outbreak on fruit and leaves. The trunk remained clear of mold and fungus, the leaves appeared fully green and without the distortion of Canker markings, the fruit appeared to be free of canker spotting. It is very unfortunate that Mr. Jones continued with his clear cut protocol and cut our test tree down to the trunk. (13)

The Buckhorn test tree looked too re-bound and displays a healthy canopy with new growth. (14)

The Hurricane damaged tree showed continued increased new growth canopy compared to the non-sprayed trees in the area. (15)

The Blight afflicted tree showed increased new growth compared to other trees in the same area but this tree was also cut down to the Buckhorn status. (16)

## Review:

This was a test to see what sort of results that can be gained by the application of the Vita products in a set spray protocol. The initially planned protocol was not followed so we continued with the spray to determine a proof of concept.

## In conclusion:

The Vita sprayed trees all displayed increased new growth of the branch and leaf canopies. The Buckhorn tree example showed a quicker initial growth then by week four tended to lag behind the three other buckhorns in the observed area. By the eighth week, this test Buckhorn showed that it had caught up with the other Buckhorns in the photos and had a full healthy canopy structure without the insect infestation that was present on the other Buckhorns.

The Canker tree produced a full new growth canopy that was spot free of Canker spotting with fruit to match. I must emphasize that the test tree displayed this trend on all NEW GROWTH. Any existing leaves with spotting prior to the initial spray application remained unchanged. The advantage of the timing of this spray was that new fruit growth (blossoms) were just beginning, so the fruit that was growing on the tree had a chance to be influenced by the Vita treatment. The results of this treatment were Canker spot free fruit skin surfaces.

It is very unfortunate that the Field Manager did not recognize these results and continued with cutting the test tree down to the trunk as part of there old protocol. (17) I feel that these initial results warrant further testing and application in a dedicated structured test.

Emanuel B.

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\*See the attached protocol proposal.