

INTRODUCTION

This second study on plumerias is a follow up from the Spring 2016 study which indicated the optimal performance using a treatment of NPE 442 complete fertilizer and biological liquid on plumeria cuttings or stakes. A customer commented that the initial study did not include competing treatments for comparison so this second study was commenced in late Spring 2017. Trial was initiated Tuesday April 4th with first set of treatments.



ABOUT NPE 442

NPE 442 (New Phase Elementals Formula 442) was developed by SGW after 65 years of agricultural product formulation experience. NPE 442 is a unique, complete liquid nutrient which combines all of the NPK macronutrients, all the secondary nutrients, and all the micronutrients along with organic carbon contributed from humic and fulvic acids. NPE 442 contains sea plant extract, at least 6 different beneficial bacteria strains, beneficial micro-fungi, 16 different amino acids, as well as 5 different natural growth enhancers. The secondary and micronutrients are chelated using the patented **SGW Ultra Chelation™** technology.



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Our products are used to create best-in-class growth rates matched with outstanding quality. Above, six year old Jose Muñoz holds on to a 25 pound zucchini squash.

Philosophy of Scott G Williams LLC:

Philosophy teaches, from very early on, that there are three major divisions in living things: plants, animals, and rational beings. All three levels of life contain a type of soul. The characteristics of the plant soul include growth reproduction and the ability to take in nutrition. The animal soul builds on the characteristics of the plant soul by adding characteristics such as locomotion, communication, and additional sensory functions such as sight. Humans then add on to the characteristics of the animal soul by having a rational thought process that allows for all living things to work together harmoniously.

Interestingly enough, all life appears to require a similar type of nutrition. Plants offer fuel for animals and humans in the form of food. Animals require the basic building blocks of nutrition but also require a series of micronutrients and secondary elements that are added in their feed in the

form of mineral or trace packages. Again, humans achieve their nutritional requirements through the consumption of plants and animals. However, sometimes humans don't get the full range of nutrients that they require. For this reason, humans have taken the approach of augmenting their diets with fortified foods or with mineral and trace elements vitamin pills.

The elements required to fulfill the range of secondary and micronutrient elements are not always found in the soil used in growing plants. These vital elements are combined and added to our products, which help plants reach their maximum potential. When plants reach their maximum potential, this affects the animals that eat these plants, thus affecting humans as well. The products produced in Scott G. Williams L.L.C. help create a chain reaction of better health and better living for all living things.

SCOTT G. WILLIAMS, L.L.C.
THE
MEGA
NAME IN
MICRONUTRIENTS™

FLOWERING PLUMERIA STUDY #2
Using Scott G. Williams' Jack & Stalk and NPE 442



Jack & Stalk NPE



THE STUDY PARAMETERS

1. Plants and growing media:

30 plumeria or frangipani cuttings were purchased from an ABC store in Honolulu Hawaii, as was done for last year's study. The 30 stakes were divided into three groups at random and soil or growing media was prepared:

- 8 ft.³ of Timberline brand topsoil purchased at Home Depot
- 3 ft.³ of Lambert Petmar's Peat Moss purchased at Home Depot
- 24 quarts of Burpee natural and organic Garden sustainable and renewable soil amendment made from coconut fiber
- 3 ft.³ of sand and 3 cups of 10-10-10 all-purpose fertilizer

All components mixed to make up the growing medium.

2. Plant treatments:

3 sets of ten stakes were planted on April 4th.

- (A) 10 no more added inputs in smaller, finished **black with brown streaks pots**

- (B) 10 coated in **clay-colored pots** (Ten plants were dipped in **Jack & Stalk** tomato coating which is made with STEM. Left to dry a few hours)

- (C) 10 are the **NPE 442** pots which are the **tall black pots**

3. Trial Treatments

Treatments were performed - Tuesday April 4, April 11, April 18, April 25 May 2, May 9th.

Plants remained inside until May 15th. Then they were taken outside.

Treatments consisted in the following:

- (A) For stakes planted with just 10-10-10 treated with **one cup of water**
- (B) For **Jack and Stalk** coated stakes and planted with 10-10-10 treated with **one cup of water**
- (C) For stakes dipped in **NPE 442** liquid and planted with 10-10-10 treated with **1/2 cup NPE and 1/2 water**

	(A) 10-10-10 only	(B) with Jack and Stalk	(C) with NPE 442
1st Reporting Period Six weeks into the trial (May 18th)	 The stakes planted with just 10-10-10 had no crowning. A few leaves appear ready to sprout on two of the stalks. One stalk appears dead or dying.	 The stakes coated with Jack and Stalk and planted with 10-10-10 had two full crowned plants that one could clearly see flowers and leave structures appearing.	 The stakes dipped in NPE 442 liquid and planted with 10-10-10 are the healthiest of the group. They had three full crowned plants and will have several more soon. This is the most developed of the three groups so far.
2nd Reporting Period As the trial went on, significant differences could be measured. The following photographs show the development of each of the three groups during the month of June.	 JUNE 12  JUNE 21  JULY 12	 JUNE 12  JUNE 21  JULY 12	 JUNE 12  JUNE 21  JULY 12
Final Reporting Period On July 5th, measurements were taken of the three groups of plumerias. Below are the results from yields throughout the entire growing period (average per plant)			
Plant Height	6 inches	6.1 inches	6.2 inches
Number of Leaves	8 leaves	6.1 leaves	7.6 leaves
Number of Flower Clusters*	0 clusters	0.78 clusters	1.77 clusters
Average number of flowers produced per plant	 0 flower	 2.2 flowers	 13 flowers

*Clusters contained buds which then became flowers.

CONCLUSION

Unless grown in a nursery or greenhouse, most plumerias are likely planted directly into the soil with a bit of NPK granular placed around the cutting or stake. This approach is modeled by the first treatment and results are typical and expected – growth of leaves without flowering.

When the stake is coated with **Jack & Stalk** coating before planting in the ground, performance jumps to include both leaves and flowers (resulting from the flower clusters). This is an obvious improvement over traditional treatments and may result in being the most economical approach if the yield is considered adequate or desirable. Its only variance from the control group was the coating added.

Finally, this year's trial reinforces the results from last year's work: **NPE 442** delivered the best treatment performance. The number of leaves was high, the tallest average of plants from the three groups, and a performance of flowering that was more than double the result from even the coating group.

Fertilizer is added to crops to try to guarantee a minimum field performance and is an attempt by the grower to optimize or maximize the yield of the crop. The two plumeria trials (year one and year two) demonstrate that a traditional approach of merely applying NPK fertilizer alone doesn't generate the best response possible. A regular treatment with **NPE 442** will greatly enhance the growth and performance of the plants. As seen with the plumerias, a regimented (thrice weekly) application of a small dose (1/2 cup **NPE 442** and 1/2 cup of water) seems to force flowering and resulted in the best yield out of the three groups of plant treatments tested.

