



## Research, Validation and Commercialization of Technologies

### IFUS Citrus Trial (Rev.2-19Mar26-ifus)

#### Washington Navel Orange Trial March 2026

Purpose: To expand our testing as to the efficacy of (1) Nutri-Mastic™, (2) SupremeAG™ Mulch, (3) SupremeAG™ Soil Amendment, and (4) SupremeAG™ Soil Replacement against untreated Citrus Plants planted in a blend of (A) Commercial Potting Soil, (B) Commercial Cow Manure/Humus, (C) Natural Cow Manure, and (D) Synthetic Fertilizer.



The intention of this Expanded Washington Navel Citrus Trial is to gauge “Performance Outcomes”, to include:

1. Growth Rate
2. Bloom Production
3. Fruit Production
4. Fruit Quality
5. Predation
6. Weed Management
7. Hydration Requirements

### Experimental Design:

1. The "Washington Navel" will be used in this experiment.
  - a. Per the Saxon Becnel & Sons Website "Considered to be the original and still the best navel variety. Tree size is medium to large in size with a round top and has a drooping habit. The fruit is large, flavorful, considered seedless, and appears to hold well on the tree. The fruit is also known to section and peel easily."
  - b. Also, "Washington Navel Orange Tree, the Historic Seedless Orange That Built California's Citrus Empire" January 4, 2026, <https://uscitrusnursery.com/blogs/citrus-simplified/washington-navel-orange-tree>
    - i. "Key Takeaways:
      1. The Washington Navel Orange originated from a bud sport in Brazil around 1810-1820
      2. Only 12 trees were imported to the US in 1870, with just two surviving to build California's citrus empire
      3. These oranges are completely seedless due to their inability to produce viable pollen
      4. Peak harvest season is November through January, with fruit holding well on the tree for months
      5. The distinctive "navel" is actually a small secondary fruit that develops at the apex
      6. Washington Navels require specific climate conditions and are sensitive to heat during bloom
      7. This variety launched the commercial citrus industry in California and remains a premium choice for home growers."
2. All Citrus Trees (Washington Navel trees (5-gal)) to be blind sorted and located into a common area so as to create equal ambient conditions to include sunlight.
3. All Citrus Trees will be planted in 24" Concrete Pots and placed on a common cement slab (as illustrated above).
4. Washington Navel trees (5-gal) will be grouped and tested as follows:
  - a. 5-Trees as Controls planted in:
    - i. 48%/48% Commercial Potting Soil and Commercial Cow Manure/Humus Mix, respectively

- ii. mulched at the top of the soil with fresh cow manure about 6-in thick
- iii. fertilized with one (1) scope of Osmocote, as recommended,
- iv. as illustrated in the pictures below and noted as Trees 1-5:



- b. 5-Trees planted in:
- i. 48%/48% Commercial Potting Soil and Commercial Cow Manure/Humus Mix, respectively...
  - ii. mulched at the top of the soil with SupremeAG about 6-in thick (with No Osmocote or natural cow manure added)...
  - iii. and, illustrated below and noted as Trees 6-10.



- c. 5-Trees planted and mulched with 100% SupremeAG™.
- i. Noted as 11-15

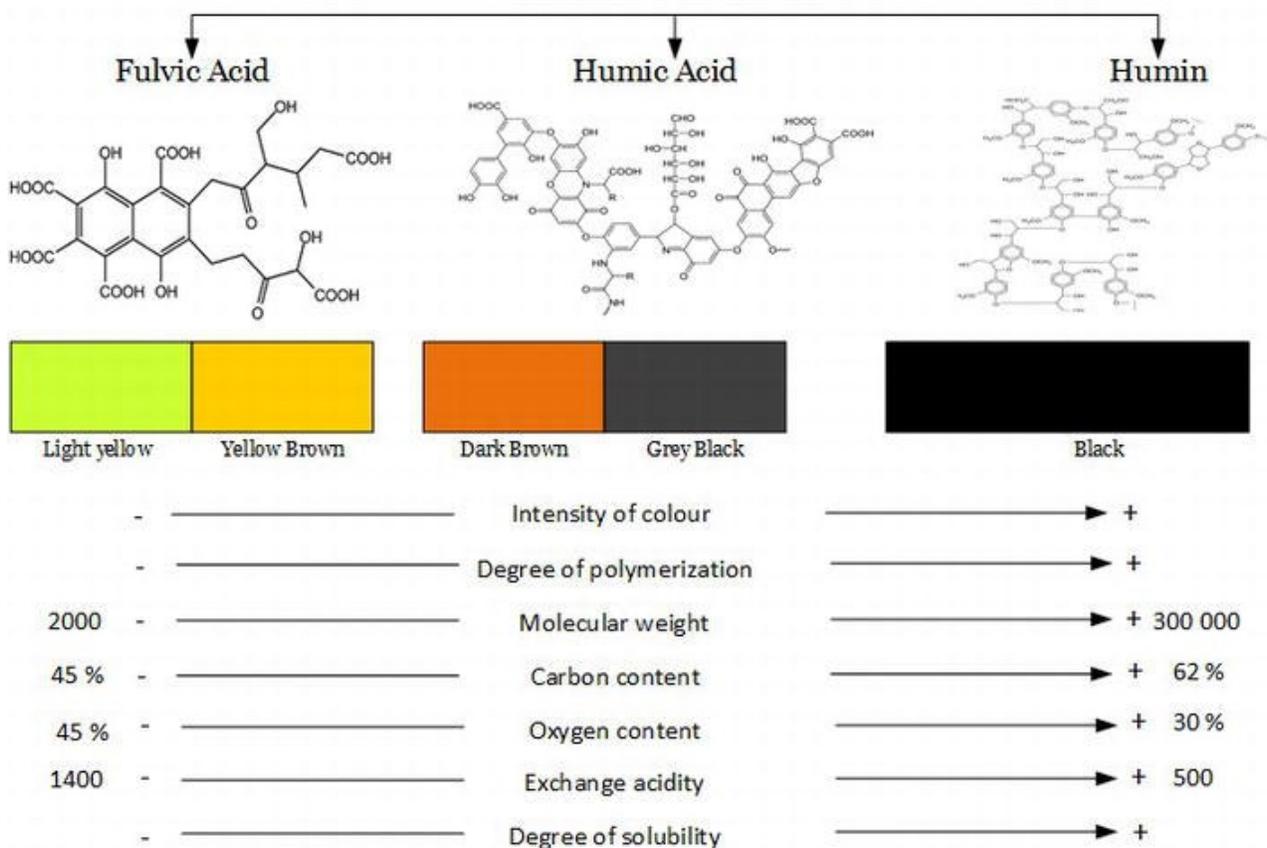


- d. 3-Trees planted in:
- i. a 33%/33%/33% SupremeAG™, Commercial Potting Soil, Commercial Cow Manure/Humus Mix, respectively...
  - ii. and, mulched at 1% SupremeAG™ about 6”in from top of the soil base.



1. Note: We believe as SupremeAG™ matures, shifts in color, texture, pH, fiber integrity/degradation, and the like suggest to us:
  - a. Lighter, more fibrous material could be more ideal as a mulch.
  - b. Dark Brown and fiber degraded material could be used as soil amendment.
  - c. Blackish material that resembles healthy dirt could used as soil.
2. The science is suggesting to us that the coloration is indicative of higher concentration of Humic Acid to Fulvic Acid to Humin, respectively (see the illustration below).
  - a. Hence, we have been applying the product as mulch, soil amendment, and actual soil, respectively.
  - b. The findings and results from application of SupremeAG™ are encouraging, albeit not enough statistical evidence accumulated as this time to create solid guidance. However, initial results are most-encouraging.

## Humic Substances



Source: Humic Substances: Its Toxicology, Chemistry and Biology Associated with Soil, Plants and Environment, Rajneesh Kumar Gautam, Dimuth Navaratna, Shobha Muthukumaran, Amarendra Singh, Islamuddin and Nandkishor More. Submitted: 19 November 2020 Reviewed: 21 May 2021 Published: 07 June 2021 DOI: 10.5772/intechopen.98518

Furthermore, with the guidance provided above, the application of SupremeAG™ with Nutri-Mastic™ could plausibly be applied as a technology based on Best Gardening Practices" for respective plants, trees, and shrubs. Color grading and pH could be applied to provide a level of qualitative determination of the specific phytochemical present.

NOTE: The March 2026 Trial is a statistical trial and is serving as an add-on trial to the General Trial initiated in April 2025 on a variety of Citrus Trees.

### April 2025 General Citrus Trial

#### 1. General Trial Intention

- a. Can Citrus Tree be successfully grown in planters (for possible growth in a protective environment) to minimize/eliminate damaged from weather extremes and

- other negative conditions?
  - b. Can SupremeAG™ affect the growth, performance, and production of these trees in a positive manner?
  - c. Can Nutri-Mastic™ provide positive support of growth, bloom and fruit production, while eliminating pests, weeds, and other negative predators (e.g.; aphids).
2. List of Trees purchased and planted in April 2025
- a. Group 1 List:
    - i. 2-Owari Satsuma
    - ii. 2-Washington Navel Orange
    - iii. 2-Cara Cara Red Navel Oranges
    - iv. 2- Improved Meyer Lemon
    - v. 2-Red Grapefruit
  - b. History:
    - i. Planted in various clay pots with some coated.
    - ii. Planted in a mix of 45%/45%/10% Top Soil, Cow Manure/Humus Mix, and Local Manure
    - iii. Due to weather extremes and inability to get SupremeAG™ delivered and handled on location, ½-scoop of Osmocote added.
    - iv. Mulched with SupremeAG™ in Oct 2025
    - v. Placed into Greenhouse in December 2025 with Heat Warming Lamps
    - vi. Removed from Greenhouse in March 2026
    - vii. Re-Mulched with SupremeAG™ in March 2026
3. List of Trees purchased and planted in Fall 2025
- a. Group 2 List:
    - i. 1- Improved Meyer Lemon
    - ii. 1-Washington Navel Orange
    - iii. 1-Brown Select Satsuma
  - b. History
    - i. Allowed to remain in original potting
    - ii. Placed into Greenhouse in December 2025 with Heat Warming Lamps
    - iii. Removed from Greenhouse in March 2026
    - iv. Re-Potted with 33%/33%/33% SupremeAG™, Top Soil, Cow Manure/Humus Mix, and Mulched with 1% SupremeAG™ about 6-in from top of soil in March 2026
4. List of Trees purchased and planted in March 2026
- a. Group 3 List:
    - i. 1- Improved Meyer Lemon
    - ii. 1-Brown Select Satsuma
    - iii. 3-Tart Kumquat
  - b. History:
    - i. Planted in various clay pots (some coated)

- ii. Soil amended with 33%/33%/33% SupremeAG™, Top Soil, and Cow Manure/Humus Mix with 1% SupremeAG™ mulch about 6” from top of soil.

## **Washington Navel Trial: Performance Update:**

- Weather temperature extremes (frost) coupled with incredibly warm weather has been noted.
- High winds with frontal passages and sustained for hours afterwards have also been noted.
- “Teasing” and “Scoring” of the root bound trees was performed prior to replanting.
  - Hence, the trees will take a few weeks to settle and require a little extra TLC.
- An Xcel Spreadsheet is available on measurements being taken ([ADD LINK](#))

## **General Citrus Trial: Performance Update**

### **Sat. 14Mar26 Update: General Trial:**

History: 2025 presented another year of erratic weather in Southeast Louisiana with:

- First ever blizzard in recorded history (21Jan25) and record snowfall (about 18” on the IFUS Test Farm) and below freezing temperatures for days (11degrees F at night for multiple hours).
- This blizzard was preceded and followed by record heat, resulting in early blooms (about 60-days early), followed by late Winter freezing conditions and Early Spring Frost (well-past normal conditions).
- Citrus Trees planted in the ground (15 in total) were lost to the freezing conditions. This has been a repetitive cycle of late.
- Hence, a decision was made to plant Citrus Trees in planters that could be moved into a temporary greenhouse until a permanent structurally sound sunroom could be built.
  - Severe hurricanes have also damaged and destroyed many Citrus Trees on the IFUS Test Farm and in SELA in general.

Update in preparation and will be provided in the next update

We have already noted what seems to be the mitigation of aphids (as shown above) on Citrus Trees in the General Trial. A minor infestation was noted with evidence of the presence of the aphids, but NO noticeable damage. After adding fresh mulch to the older plants, coupled by a SupremeAG™ mixture and mulch of the soil in newer plants, and a liquid application of Nutri-Mastic™ mixed in water, no aphids can be found on the trees, This is VERY early data, and will remain a focus of the General Trial.





Please note on the pictures above (1) the leaves being eaten and (2) the black soot, which developed prior to bloom production and SupremeAG™ being added. Furthermore, please note that the Citrus Plants are in bloom and actually producing fruit.

We then considered the “Inputs”, to include: (1) VERY warm conditions for months, (2) plus greenhouse storage for nearly 2-weeks, (3) with freshly added SupremeAG™ for about 6-weeks, (4) on plants acquired and placed into planters in May 2025.

Here are additional observations:

1. The blooms are more fragrant and plentiful than ever noticed before.
2. The fruit is young, but maturing rapidly with very little early-stage drop of fruit.
3. The plants are experiencing a burst in growth since the SupremeAG™ was added as mulch.
4. The leaves consumption, Black Soot, and leaf curling has slowed significantly.

Hence, we beg several thoughts and questions:

1. Why are the Ladybugs there and what are the Ladybugs?
2. Is SupremeAG™ allowing for the maximization of the “Inputs” so as to stimulate bloom production that is plentiful and highly fragrant?
3. Is it the bloom production producing more highly concentrated flavonoids (or other phytochemicals) that are attracting Ladybugs?
4. Are the prevalence of Ladybugs reducing the aphid population, which is reflected in a decrease in curling leaves and black soot (which was on the uptick prior to bloom production)?

When overlaid with initial and invaluable work performed at SUAREC, the cascade of thoughts and questions floods the imagination. However, the attraction of Ladybugs to the Cruciferous vegetables tested, and now to citrus trees in bloom in Jan of 2026 in the Northern Hemisphere certainly seems more than mere coincidence...or so one might think.