Tobacco Greenhouse Guide

Sanitation Practices:

Greenhouse: Hand remove all weeds before seeding.
Trays: steam at 160 degrees to 175 degrees for 30 minutes
-Contact your local Extension Office for information regarding entities that steam trays and/or provide the equipment to do so.
Mower: use 50% household bleach solution and thoroughly rinse before each clipping.

Germination Temperature:

Optimum daytime: 86° Fahrenheit
Optimum nighttime: 68° Fahrenheit
-It is important to fluctuate day and night temperature to break seed dormancy.
-Nighttime temperatures can be reduced to 55-60° Fahrenheit after stand establishment.
-Seed trays when the five day forecast predicts bright, sunny days.

Solution Analysis:

NCDA&CS analyzes water for $5.00/sample. A water analysis is useful in monitoring pH, bicarbonates, and trace elements. A well rinsed regular drink bottle (16 oz.) is sufficient for sampling. Allow water to run from source for several minutes prior to sampling. A water sample will provide information for correcting bicarbonates.

Fertilizer Management:

2-1-2 or 3-1-3 ratio fertilizers are recommended
16-5-16 and 20-10-20 fertilizers are commonly used

Nitrogen:

Add 100-150 ppm up to 7 days **AFTER** seeding. This will reduce salt injury to seedlings. Add an additional 100-125 ppm 4 weeks after seeding. If using an injector, maintain 125 ppm N.

Phosphorus (P) and Potassium (K):

2-1-2 and 3-1-3 ratio fertilizers provide sufficient amounts of both P and K, when targeted nitrogen rate is achieved. Excessive P can result in "leggy/spindly" transplants.

Calcium (Ca):

Sufficient Ca should be included in the media through Gypsum; if not 5 oz. Gypsum/100 gallon of water is sufficient. If a deficiency is confirmed, 8.6 oz. of calcium nitrate mixed in 100 gallons of water can be applied overhead. Application to the float water is acceptable as well. If used, either of these applications will provide 100 ppm N.

Magnesium (Mg)/Sulfur (S):

Sufficient Mg and S are typically obtained from standard fertilizers. If deficiency is of concern, add Epsom salts at a rate of 4 oz./100 gallon water.

Boron (B):

To ensure that a trace amount of B is present, choose a fertilizer that has 0.02% B. Float bed concentration should range from 1-2 ppm, less than 0.5 ppm is considered low. If correction is needed, add no more than 0.2 oz./100 gallons water of Borax. This will supply 1.5 ppm B. Collect a water sample to determine B levels. **REMEMBER B is toxic to plants when concentration exceeds 2 ppm! Total source water B content should be added to fertilizer B to determine total B concentration in the float bed.**

Calculation for Gallons of Water in a Float Bed:

length (ft) x width (ft) x depth (ft) x 7.48 gallons per cubic foot = gallons of water in a float bed

Fertilizer Calculation:

Desired ppm of nutrient / (% N concentration in fertilizer x 0.75)

Disease Control:

Sanitation and ventilation are essential to successful disease control.
Pythium Root Rot: Terramaster 4EC: Preventive rate: 1oz./100 gallons float water.
Curative rate: 1.4 oz./100 gallons float water.
*Ensure that Terramaster is mixed well throughout the float bed. Root pruning is expected. Apply no earlier than 3 weeks after seeding and no later than 8 weeks after seeding. Maximum use of Terramaster is 3.8 fl. oz. per year.

Target Spot: Quadris: Rate: 0.14 oz./1000 square feet. Use at least 5 gallons of water per 1,000 square feet. Coverage is critical!!! Make only one application prior to transplanting.

Black Root Rot/Tobacco Mosaic Virus: no chemical control, must discard infested trays

Seedling Growth Management:

Clipping properly ensures plant uniformity, hardiness, and number of useable plants. Begin clipping when plant height is 2 to 2.5 inches above tray or 1.5 inches above bud. Clipping 5 times increases usable plants by increasing stem diameter and reducing stem elongation. After the 5th clipping, you're only "holding" plants until transplanting. Discard plant clippings at least 100 yards from the greenhouse.

Insect Control:

Aphids and Flea Beetles: Orthene: 0.375 oz. in 3 gallons of water per 1000 square feet during transplant production.
Admire Pro: 0.8 fl. oz. per 1,000 plants (check formulation) for field protection
Platinum: 0.8 oz. per 1,000 plants (check formulation) for field protection
-Admire Pro and Platinum should be applied overtop of transplants, and then rinsed off immediately to ensure media wash-in.
-Admire Pro and Platinum treated seedlings should be transplanted within 3 to 5 days.

Estimated EC Meter Reading Examples

	100 ppm N	150 ppm N
Ultrasol 16-5-16	0.80 mS/cm	1.20 mS/cm
Ultrasol 20-10-20	0.65 mS/cm	0.975 mS/cm

*If acid is utilized to correct bicarbonates, EC reading will be elevated.
*Many greenhouse fertilizer labels contain estimated EC readings.

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