

# Basic Management Practices For Tobacco Float Systems

**DR. ANDY BAILEY**

**PRINCETON, KY.**



**T**obacco transplants grown in the float system offer several advantages over plants grown in traditional ground beds. The float system allows more control over plant growth, better uniformity of plants, easier transplanting, and less transplant shock. However, more overall management is required in the float system. Below are some basic management practices for new transplant growers, and “reminders” for more experienced growers.

## Fertilization

There is really no need to apply fertilizer to float water until seeds germinate, which is usually 7 to 10 days after seeding. Fertilizer added at seeding increases risk of soluble salts injury, increases algae growth, and is inefficient since nutrients aren't used until germination and root emergence anyway. Nitrogen levels should be maintained near 100 parts per million (ppm) nitrogen for at least the first 6 weeks or so after seeding. Nitrogen levels can be dropped to around 75 ppm for the last week or so prior to transplanting to help “toughen” the plants before going to the field. Water-soluble fertilizers that contain mostly nitrate nitrogen should be used. Common fertilizer sources used in float beds include 20-10-20 or 15-5-15. For 100 ppm nitrogen, apply 4.2 pounds of 20-10-20 per 1000 gallons of float water or 5.6 pounds of 15-5-15 per 1000 gallons of float water. A simple formula for calculating water volume in a float bed is to multiply the number of trays the bed will hold X depth of water in inches X 1.64 (ex-

## Float bed and tray sterilization

Prior to laying new plastic for float beds, remove all trash and debris from the float bed area and sanitize all surface space with a greenhouse disinfectant containing quaternary ammonium chloride salts according to the product



label. Spray all surface areas including side-walks, work areas, seeding tables and equipment, around the entry door and 2 feet or so up the end walls and side curtains. Using new trays (regular or disposable) is best; but if old trays are used, sanitize by steaming (170 to 180 F for 30 min), or wash trays thoroughly with 10 percent bleach solution. When washing trays, wash with soapy water first and then dip several times into clean 10 percent bleach solution. After dipping, cover the trays with a tarp overnight and then wash with water. Allow trays to dry before filling with media.

## Media

Insure that media is fresh when purchased. Avoid over-packing trays with media, but insure that media reaches the bottom of tray cells when filling. Check moisture wicking of media by filling a few trays, dibbling, and floating on the float bed prior to seeding the entire bed. Keep in mind that media will wick more quickly on cloudy days than on sunny days due to evaporation. On cloudy days, fresh media should wick moisture to the top of trays within minutes of floating. On sunny days, even fresh media may take a few hours to wick.

## Water Level

Try to keep the water level high enough in beds so that the tops of trays are at least level with the sides of the bed. This is generally 3 to 5 inches of water depending on bed depth. Keeping trays floating at this level following germination allows more airflow through plants and makes conditions less favorable for disease.

## Temperature at the plant level

For optimum germination and growth, temperature at the plant level should be kept around 72 F during the day and 60 to 70 F at night. After plants reach the 4-leaf stage, nighttime temperatures can be dropped to 50 to 65 F to conserve heating costs.

ample: 200 trays X 4 inches of water X 1.64 = 1312 gallons).

Apply fertilizers to float water through an injection system or other circulation system to insure even distribution of the material throughout the float bed. An injection or circulation system should also be used when applying Terramaster 4EC to float water for pythium soft rot control.

## Disease control

Monitor transplants daily to look for signs of disease and other problems on foliage and roots. Use pesticides that are registered for use on tobacco transplants grown in the float system and follow recommendations for application rate, timing, method, and any restrictions given on the product label.

## Clipping

Mechanical clipping increases uniformity, stem diameter, and general health of transplants. Clip regularly (at least 4 to 5 times) before transplanting. Begin clipping when plants are 3 to 3.5 inches tall and remove about 0.5 to 1 inch of foliage at each clipping, being careful not to damage the terminal bud of plants. Remove all clippings and dispose of clippings outside and away from float beds. Disinfect mower with 10 percent bleach solution after each use.

It generally takes about 8 weeks to produce a transplant that is ready to go to the field. Avoid trying to “push” plants with high nitrogen levels in order to have plants ready quicker. High nitrogen levels (over 125 ppm) can result in more disease problems in the float bed, and can also increase risk of other problems in the field. For more detailed information on tobacco float systems, see the 2009-2010 Kentucky & Tennessee Tobacco Production Guide, which is available online at <http://www.ca.uky.edu/agc/pubs/id/id160/id160.pdf>. Δ

*Dr. Andy Bailey is Extension Tobacco Specialist with the University of Kentucky Research and Education Center at Princeton.*