

## Simple Mist System for Strawberry Plug Production

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### Introduction

For growers that are using the annual plasticulture system of strawberry production, the cost of plugs is a substantial recurring investment. By purchasing tips and producing their own plugs, approximately 50% of the plant costs can be saved relative to purchasing plugs. Producing plugs from runner tips is not difficult but like all horticultural enterprises requires attention to detail, good sanitation and timeliness.

The largest recurring costs in producing plugs, aside from the runner tips, are soilless media and plug trays. Growers may be tempted to reuse plug trays but it is not advised as the potential savings are not worth the potential risks of diseases. Trays could be dipped in a dilute bleach solution to help clean them but any potential savings will quickly be taken up by the labor involved in this. The largest one-time expense could easily be for the timer unit, although if the grower is establishing a large plug production operation, there can be significant cost in the pipe, fittings, and nozzles.

The following illustrations and accompanying explanation should allow you to construct your own propagation system capable of producing 600 plugs in 50-cell trays.

**List of Materials** – PVC or CPVC can be used. PVC is typically less expensive. Make sure to use the proper fittings and solvents for the material.

(1)- Propagation timer such as the DIG 710AP with integrated valve

(1)- Solenoid if not included with the timer.

(1)- 10 PSI pressure reducer

Tubing cutter, cement and primer, Teflon tape

(2) – 8' ½" Pipe (16') total

(2) - ½" T-fittings for risers

(1)- ½" end cap



(2)- ½" FIP fitting



(1)- ½" x ¾" hose adapter

Nozzle Assembly (mini wobblers or similar). It is possible to use fine misting nozzles, but if the plant flats are outside you are more likely to get evaporation than if you are using a mini-wobbler type system that produces larger drops.



#### **Assembly –**

A) Cut one section of pipe into 3 sections:

(1)- 3' and (2)-18" each. Using the appropriate primer and solvent attach ½" T-fitting at either end of the 3' sections. This is where the risers will be installed. Using the primer and solvent attach the 18" sections into the T-fitting opposite the 3' section.

B) Using primer and solvent attach the ½" by ¾" hose adapter to the free end of one 18" section and the end cap to the other end. Additional units can be attached simply by replacing the end cap with another ½" x ¾" adapter. If this is done, it would be helpful to include a valve between sections so that the system can be turned off if the additional length is not needed.

c) The second section of pipe should be cut into (2) -2' sections.

D) Using primer and solvent attach these 2' sections into each T-fitting for a riser and then attach the ½" FIP fitting to the free end of the riser.

E) The nozzle assembly is then wrapped with Teflon tape and screwed into the risers.

F) Using ¾" garden hose attach, this system to a hydrant that has a 10 PSI pressure reducer attached. This section is run to the solenoid which is wired to the timer. (\*\*Note – electricity and water can be fatal if not treated with respect. Connect timer to the electrical source away from the mist system and use a waterproof box.) When the timer opens the valve in the solenoid, water will flow from the hydrant through the pressure reducer to the solenoid and then on to the mist system.



Hose from hydrant into solenoid and out to mist system if used in place of propagation timer.

This system will need to be staked to hold it erect. Rebar works well. It is also possible to construct legs to support this system using the extra pipe and additional fittings, but we have found that by keeping the system two-dimensional it is easier to store flat along the wall or on a shelf.

### **Timing**

Every year is different, but we have found that for the first week it is probably best to run this mist system for 30 seconds on and two minutes off during daylight hours. As the runner tips begin to root and grow, the interval between run times increases and the duration can also slowly increase until the final week before planting the plugs should be watered 2 or 3 times per day for approximately 2 minutes.



Mist system attached to two sections of rebar with zip ties.



(12) 50-cell trays will fit easily around this system and should be adequately watered with 2 foot risers.

Reviewed by Dr. John Strang, University of Kentucky (2014)