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SEED STARTING UNDER LIGHTS Fact Sheet #52

By Alachua County Master Gardeners Anne Marie Mattison, Leslie Roseman, Alicia Nelson, and Wendy Wilber, Horticulture Extension Agent, March 8, 2007

Have you wished that you could start seeds indoors under lights during the cold months of winter like the professionals do? Have you been given seeds by a friend that you would like to give the best possible start? Imagine having plants ready to go into the garden at the first frost free date in your area! Listed here is a way to do that, with purchased materials that are a fraction of the cost of ready made seed starter lighting kits. A search of the internet for ready made seed starter kits with lights found a large variety of prices, beginning at $70! A seed starter light, as illustrated and discussed in this article, cost approximately $25 in materials; seeds, trays and soil are extra. A timer is included in the materials list, since the lights need to be on for 18 hours per day. A timer ensures that the plants receive sufficient light per day. One could forego the timer but only if the light source is consistently turned on and off at an 18 hour interval on a daily basis. PVC glue may be used when connecting the pieces of piping for a permanent bond. However, if one wishes to disassemble the pieces for storage, do not use PVC glue. Prices for all materials are included in this article.

Figure 1. Assembled seed light

Materials List, with costs
(Updated 2017)

(1) Schedule 40 PVC pipe 1” x 10’	$1.82
(2) Schedule 40 PVC pipe 1” tee (1.85)	$3.70
(4) Schedule 40 PVC pipe 1” elbow (1.53)	$3.06
(1) 2-lamp 4-foot Shop Light	$7.92
(2) 4-foot 40w Fluorescent Bulbs	$9.98
(1) Electric two plug timer	$9.97
TOTAL:	**$36.45**

Instructions:

1. Do this step first. From the 10' length of PVC, have the home store cut, or cut at home with a hack saw, hand saw or any power saw:

    a. Four 12" legs – cut evenly!
    b. Four 6" cross bars – cut evenly!

When finished cutting, you will have approximately a 4' length of PVC pipe. This will be the fluorescent light support bar from which the light is suspended. It can vary by several inches and will be okay.

Assembly of PVC frame:

(Note: if using PVC glue for a permanent bond, use in a well ventilated area)

2. To make a leg assembly, take one tee and insert two of the 6" pieces of PVC pipe into the crossbar of the tee.
3. Insert elbows on the ends of the two PVC 6" pipes.
4. Insert a 12" long PVC leg into each of the two elbows. *(See Figure 2)*

Figure 2 Side detail

5. Repeat steps 2 through 4 to create leg assembly.

Installation of shop light onto frame:

1. Unpack the light.
2. There should be instructions with the light fixture, and generally, they will follow the instructions here: pull out the chains (there should be one for each end) and the "S" hook type of fastener. Loop the end of the chain through the "S" hook so that you can create a loop that is large enough for the PVC pipe to go through. The height can be adjusted as much as the chain will allow. *(See Figure 3)*

Figure 3 Detail of chain and "S" hook attachment

3. Insert the "S' hook with the chain attached into the slot on the top surface of each end of the light fixture.
4. Install the lamps in the light fixture.
5. Thread the approximate 4' long piece of PVC pipe through the two chains that will support the light fixture.
6. Insert the approximate 4' long piece of PVC into the open end of the tee on one of the leg assemblies. Do the same for the opposite end twisting the leg assembly pieces as necessary to align properly.

Seed Starting Under Lights

1. Before starting seeds indoors check the seed package to learn how many weeks before the last frost date the seeds should be planted. The average last frost date in Gainesville is March 10th.
2. Select your containers. If they have previously been used, clean them using a 10% bleach and water solution to destroy any disease organisms present.
3. Use a sterile, well drained planting medium. Commercial mediums especially formulated for seed starting work well.
4. Add tepid water to your planting medium so that it is evenly moist but not wet.
5. Fill your containers with the seed starting medium and tamp it down so that the surface is level and within ¼ to ½ inch from tops of the containers. This will prevent water run off.
6. Plant your seeds to the depth the seed package recommends. This is usually 2 to 3 times the diameter of the seed. Tiny seeds can be pressed into the medium. (Check to see if the seeds need light to germinate and if so sprinkle them on the surface).
7. Plant at least 3 seeds in each container because not all seeds will germinate and any extra seedlings can be thinned out later.
8. Gently tamp the medium to obtain good seed to soil contact.
9. Label your pots with the type of seed and the date sown.
10. Water the seeds. Bottom watering, if possible, is best because it doesn't disturb the seeds but bottom watering is not recommended for paper pots. Misting is also effective. You can cover the containers now until the seeds germinate to help maintain moisture.
    - Try to keep the growing temperatures at 60 to 75 degrees Fahrenheit during the day and above 50 degrees during the night unless the seeds need cool temperatures to germinate. Adding bottom heat can help germination but too much heat, once germinated, can cause leggy plants.
    - Once they have germinated keep the seedlings 1 to 3 inches below the fluorescent light bulb for 14 to 18 hours a day. Remember that the light in the center of the bulb is stronger than the light at the ends so rotate your plants. If you are using full spectrum grow lights, check to see the manufacturers' recommendations for growing seedlings.
    - To prevent "damping off", a fungal disease that attacks seedlings, maintain good air circulation. Using a small fan at low speed helps.
    - When true leaves form, fertilize the seedlings at ¼ the recommended strength.
    - When two sets of true leaves form, it's time to transplant seedlings into individual pots if they were started in flats.
    - Before planting your seedlings harden them by gradually exposing them to outside growing conditions for a week or so.

Reference: An introduction to the Production of Containerized Vegetable Transplants HS 126 Charles S. Vavrina University of Florida EDIS document http://edis.ifas.ufl.edu/HS126