Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Soil Media Propagation

**Purpose**

The purpose of this exercise is to discover which media type is better for the starting of plant material from asexual propagation. Students will be utilizing six various media and one plant material per group to discover which media is better to start cuttings in. Students will be observing the root development of plant cuttings over a four week period. A control group will be set aside in which no observations will be made until after the time frame has been completed. [[1]](#endnote-1)

**Procedure**

 **Materials**

Jumbo 6-pack pots 50% mixture of Perlite & Vermiculite

Perlite SuperSoil potting soil or another high quality soil

Vermiculite Peat moss & sand mixture (50% of each one)

Plant markers Greenhouse or mist bed

Dirt (regular material found outside) 4 oz jar of water (baby food jars are good to use)

Popsicle sticks (tongue depressors) 6 oz Styrofoam or plastic cups

Sharpie marking pen Long-nose clippers or other hand shears

Suitable plant material: aptenia, pathos, ivy, geranium, marguerite daisy, arrow head, creeping charlie or other herbaceous plants

**Sequence of Steps**

![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Students will be working in groups of three. Each group will receive materials as listed above. The perlite/vermiculite mixture will be mixed by the instructor. The other media will be in 5-gallon containers properly labeled. The instructor will demonstrate the correct process and steps by completing the control set of plants. Each group will receive a different plant so that the groups can report their findings to the class.

1. Complete pre-lab questions.
2. Using a Sharpie write the group name and soil media on two plant markers which will be used to identify each group’s plants.
3. Fill each cell of the 6-pack with a different media to about a half inch from the top. Label each cell with a plant marker or masking tape along the bottom. Use the 6 oz cup as your measuring device.
4. Taking the 4 oz jar, fill it with water almost to the top. You will place one cutting in the water.
5. Place a marker in the jar and into the front right cell of the 6-pack.
6. Your instructor will give your group a set of plant material in which to do your cuttings.
7. Your instructor will demonstrate how to cut the plant material, the proper length required and removal of extra leaves (to reduce transpiration loss) and place it in the media.
8. Place the 6-packs and jars under the mist system.
9. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Once a week, observe the root development of your cuttings. Using the Popsicle stick, carefully dig out the plant by loosening up the media and pushing up from the bottom of the stem. Be careful NOT to pull off any young roots.
10. Complete post lab observations and report.

**![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()**

**Pre-lab Questions**

1. On the back of this sheet, draw a diagram of a root and label all parts per the picture. Use this terminology in your discussion/report.

2. Which media do you expect to be the best rooting mixture? Why?

3. What do you expect to happen with the plant growing in water?

4. How much new growth would you expect from the cuttings because they don’t have a root system to supply nutrients?

5. Why is the mist system required for the cuttings?

6. What causes the roots to adhere to the media so tightly?

7. Why should any flower buds be removed from the cuttings?

**Data Collection & Observations**

Observe and record your findings on the number of roots, any secondary shoots and color of the developing roots of each media. Also note how hard it is to remove the media from the developing roots. You are encouraged to take pictures of the developing roots for presentations. You will be able to ‘wash off’ your cuttings in water for better observations after the second week.

Each group will record their observations in a notebook, which will be turned in at the end of the assignment. In the final report, which is to be typed, you will evaluate which media was the best for root development and give your recommendation for its use in plant propagation. The report will need to compare the root and plant growth between the various media. Details should be noted as to color and vigor of the plant along its advancement. An oral presentation will be given to the class about each groups’ results from their plants. There should be varying results between some of the experiments. Your findings and observation report will be typed in 12 point, 1.5 spacing using Arial or New Times Roman fonts.

1. Sa, Ron. (2008). Soil media propagation. *Reedley High School.* [↑](#endnote-ref-1)