Evaluating the rooting of Herbaceous and Woody cuttings

In this lab, you will be introduced to common propagation substrates that we will be using throughout the plant propagation lab. The characteristics of an ideal substrate will be discussed as well as attributes of individual substrates with which you will need to be familiar. It is important to remember that no one substrate is ideal for rooting a given species or cutting type. Attention must be given to the specific needs and preferences of a given species and/or cutting.

Measurements must be taken to compare rooting success of cuttings among the various substrates. This portion of the lab will demonstrate the steps in evaluating rooted cuttings. These steps include cleaning substrate from cutting roots, proper data collection techniques, and data calculations.

To remove substrate from cutting roots, slowly remove the cutting from the substrate being careful not to break or damage roots and gently wash roots in a bucket or jar to remove substrate particles. You may need to brush remaining substrate particles lightly with your hand to loosen all particles from the roots.

Once roots are clean, data should be recorded on rooting percentage, # of roots, and mean root length. Narrow fibrous roots are often easier to separate and count with tweezers or a similar instrument

A few notes on data calculation

- Rooting percentage is based on the total number of cuttings stuck so you will divide the number of cuttings with roots by the number of cuttings stuck.
- Root number per cutting is based only on rooted cuttings. You would determine an average number of roots per rooted cutting.
- Root length (length per root or root length per cutting) should only be based on rooted cuttings. You would determine an average length per root per rooted cutting for each treatment.

It is important to remember that measurements will be taken for roots of all cuttings to obtain rooting percentage and root number and root length will be taken only on rooted cuttings. Create a datasheet or use one provide by your instructor.

Root index = root number X root length an artificial estimate of the total root length for a cutting by combining the effects of root number and root length.

From data collected on rooted cuttings, and using any graphs created from these data, summarize the results of your experiment and conclude if the propagation substrate influenced rooting success.

Write a short discussion as to the relative degree of water holding capacity of the various media and how that may have influenced the overall root quality or timing of rooting.