

Some Ways to Acclimate Various Culture-Rooted Microcuttings

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INTRODUCTION

Culture-rooted microcuttings (CRM) are micropropagated plants that have been exposed to root initiation media in culture. Basically, these are just small softwood cuttings with the hormone already on them, ready to stick and root. They are different in that the plants have been grown in optimal environmental and nutritional conditions and have not developed the protection of a cuticle on the leaf surface. The key to success with these plants is to provide an environment that maintains cutting turgidity. The variables are humidity, light, and temperature.

CRMs can be an affordable and quick way to include a new (or old) plant into your production line without any more special equipment than most conventional propagation greenhouses already contain.

CRMs are also free from environmental pests, therefore they are generally easy to acquire from any micropropagation lab in the world.

ACCLIMATION OF CULTURE ROOTED MICROCUTTINGS

The following are some methods we have used at our nursery to acclimate various CRMs (Fig. 1).

Well Shaded Greenhouse.

- In an ideal climatic location, one may be able to acclimate cuttings with occasional hand misting.

Tent Within a Greenhouse.

- White overwintering poly works best for this, especially in the summer.
- Mist within the tent is necessary if the tent must be opened to exhaust heat during the day.
- Maintenance can be high to keep the tent covering adjusted just right to prevent heat buildup and expedite acclimation.

Automatic Mist or Fog System.

- When using mist, the mist head should produce a small enough droplet size to prevent the weight of the water from squashing the microcuttings.
- A fog system is best if an entire greenhouse can be devoted to acclimation. A small greenhouse or a sectioned-off bay also works well.

Humidity Domes.

- The domes are available from many greenhouse supply companies.
- Shade is usually necessary to prevent heat build-up.

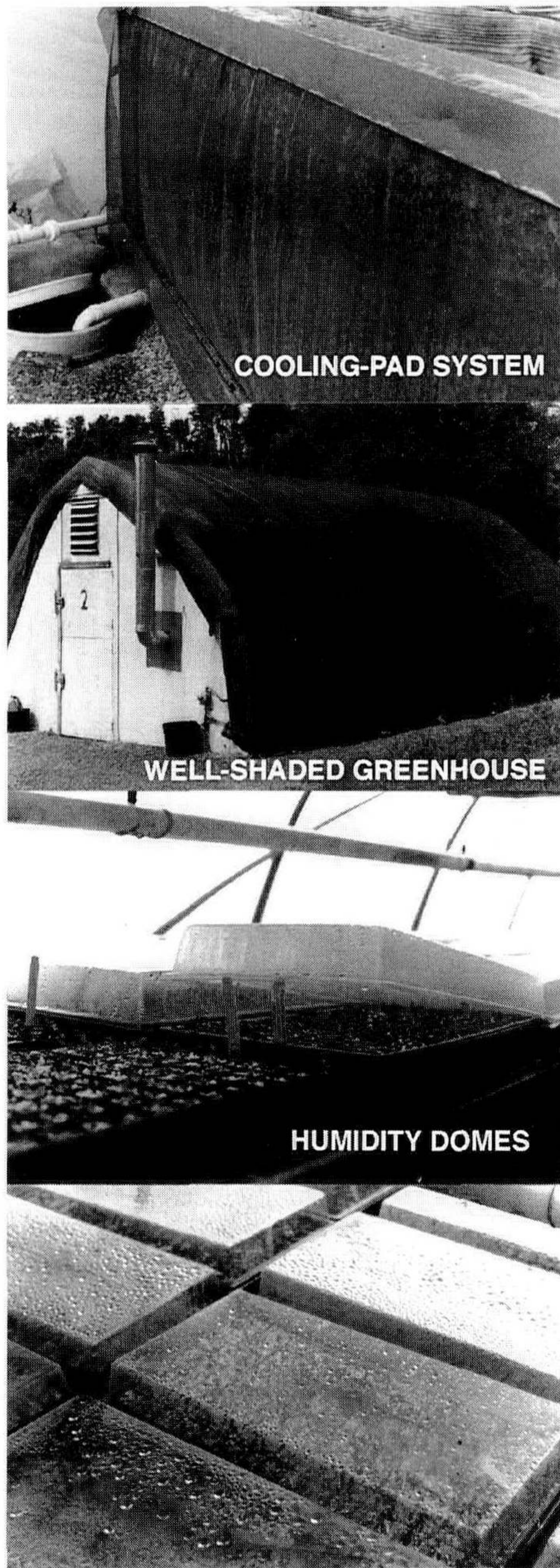


Figure 1. Methods used to acclimate various culture-rooted microcuttings.

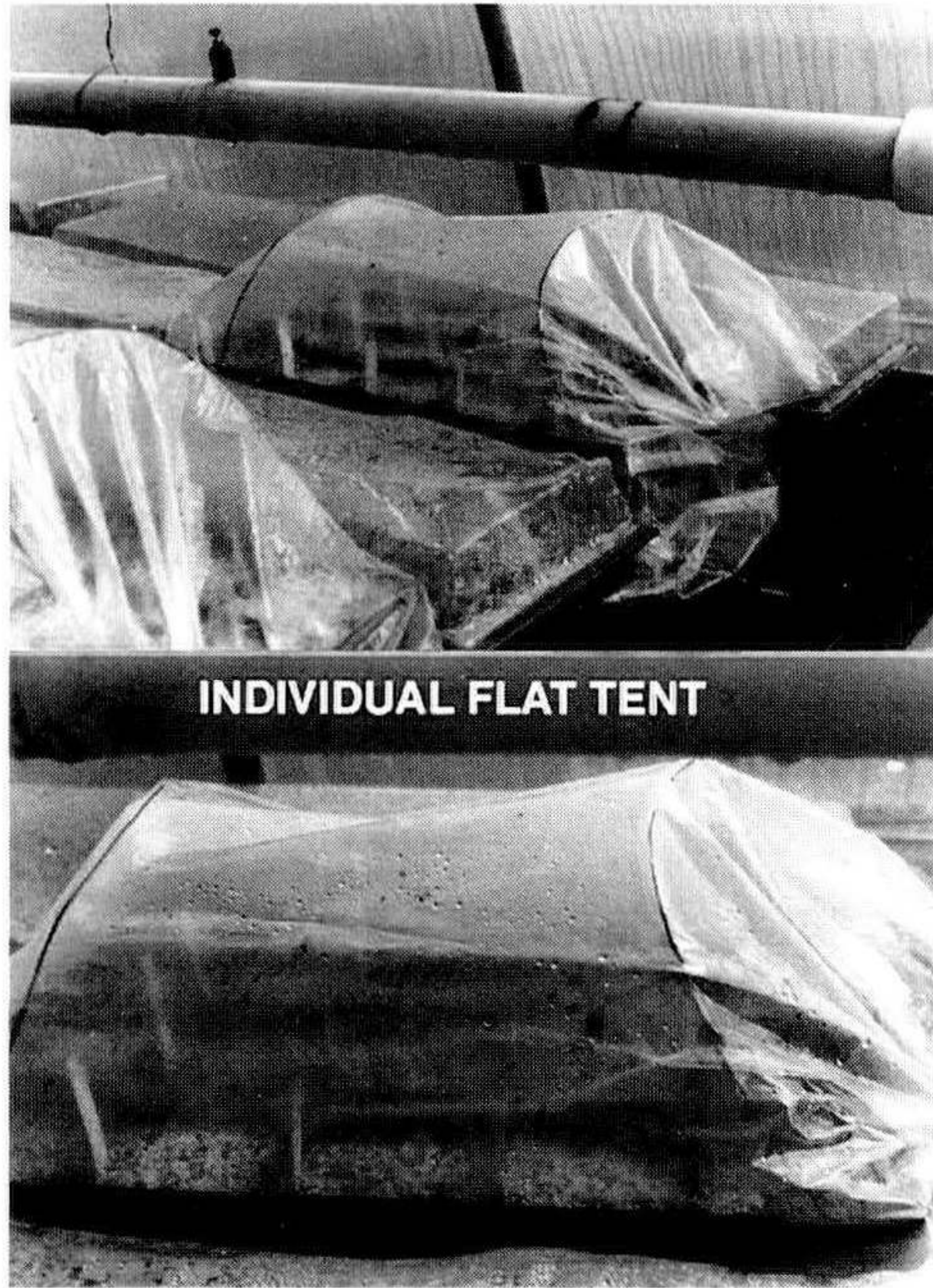


Figure 1. continued

- Gradually remove the domes after 1 or 2 weeks, or remove at night and replace later each day, weaning the plants onto the regular mist or fog.
- This method is ideal to prevent soggy media if a mist system is the alternative.

Tents for Individual Flats.

- These are easy to make with wire and plastic sheeting or bag.
- These are especially useful for flat sizes that do not have a commercially available humidity dome.

Cooling-Pad System.

- This system raises the humidity in the greenhouse, and is especially useful in low-humidity climates or seasons.
- Our system cools the greenhouse air 10F compared to outside temperatures on a low-humidity day. We are in a high-humidity climate and it cools to at least outside temperature on a sunny, humid day.

SUMMARY

Culture rooted microcuttings can be successfully handled in most existing conventional propagation systems with much of the same equipment and protocol one would use for rooting conventional cuttings. The use of a shaded greenhouse, tents, mist or fog, domes, cooling-pad, or a combination of these, can lead to the successful production of plants acquired from tissue culture laboratories.