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Cutting-Propagation Media: Cutting to the Chase®

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INTRODUCTION

During crop production, cuttings of woody nursery crops or even herbaceous greenhouse crops are seldom planted directly in a growing medium in which the crops would be finished. Cuttings are first rooted in a propagation medium in propagation containers and grown in propagation houses. The cutting-propagation medium is thus an important part of the propagation process.

When you are a supplier of growing media, you face many queries concerning media for cuttings: Is the medium sterilized? Why not? My cuttings are rotting! Are fungus gnats coming in the media? Media smells! When should I feed the cuttings? Why are my “rhodies” not rooting as well as those I saw in Georgia?

You notice that the same growing medium produced very good roots at one grower and poor roots at another grower. You notice roots on blackberry proliferate like emails on your BlackBerry and magnolia keeps mum like your landline. You start wondering about the basis of these differences and whether a medium can remedy them to some extent. How can media serve as a conduit for the needs of cuttings?

Clearly, there are many variables: different plant species; leaf cuttings, stem cuttings; softwood, hardwood cuttings; propagation house styles; range of containers; hot and cold temperatures, and then range of medium components. There are, of course, cost considerations. All of these are important. Comprehending and transferring findings from one situation to another is not easy either. However, you want some common principles that can guide you through all this. Here is that attempt.

There are no medium recipes here. However, with an understanding of the mechanisms underlying cutting propagation and your growing conditions, you can intelligently decide on a suitable formula for your cutting medium and match your cultural practices to that medium.

ROOTING OR ROTTING

Conditions that are good for rooting of cuttings — warm temperature, high humidity, free moisture, and a wounded, young plant part — are unfortunately also good for the growth of fungi, fungus gnats, bacteria, etc. Naturally, we want to prevent the entry of these pathogens and pests into the propagation house. Prevention is better because most fungicides used to control pathogens also reduce rooting.

Using hygienic cutting media is one way to prevent pathogens. Articles on cuttings propagation indeed recommend sterilization of growing media to kill pathogens before its use. But, is this additional expensive step necessary anymore?

Botrytis is the pathogen that infects the cuttings the most. *Botrytis* is air, not soil-borne. The source of *Botrytis* is often the mother plant or other neighboring plants.

Other rot-causing pathogens such as *Pythium*, *Rhizotonia*, *Phytophthora*, *Fusarium*, and *Thielaviopsis* are soil-borne. To prevent soil-borne pathogens, some growers steam-sterilize their cutting media. However, this is a hangover practice from the days when topsoil was used in the growing media. Topsoil generally has