

RECOVERING TWO ELITE HYBRID SWEETGUM CLONES FOR PROPAGATION BY SOMATIC EMBRYOGENESIS

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Somatic embryogenesis-derived hybrid sweetgum (*Liquidambar styraciflua* x *Liquidambar formosana*) clones were developed for pulp and paper and biomass energy applications over 15 years ago. Some of the clones displayed outstanding growth rates and enhanced wood density in field tests. These were propagated as rooted cuttings by ArborGen Inc. and grown by a small number of landowners in the southeastern US, with promising results. However, the clones are currently not being sold by ArborGen. Other clones that were not licensed by ArborGen have been grown by UGA in a small demonstration planting in Athens, GA, for the past 12 years and some of these have demonstrated superior growth rates. With help from consultants, we chose two of the most promising clones to be propagated for further field testing and possible commercialization. Only one of the two clones was still available as an embryogenic culture. Although a copy of this culture that had been maintained continuously by serial transfer no longer was capable of making somatic embryos, two copies of the same culture recovered following 15 years in cryostorage retained this ability. Trees of the other clone in the test planting that was not represented in cryostorage began producing staminate inflorescences in 2018. We collected dormant buds containing inflorescences from this clone in February 2020 and staminate inflorescence tissues were induced to initiate embryogenic cultures at a rate of 13.3%. Of the three plant growth regular treatments tested for induction, only explant material cultured on the basal medium supplemented with NAA produced somatic embryos. Somatic embryos produced from both clones have been germinated to produce somatic seedlings that can be used as the basis for scaled-up propagation of the clones.