

Establishment of Hybrid Poplar on a Reclaimed Mine Site in Southern West Virginia¹

A. Hass*, R.S. Zalesny Jr., and D. Patel²

Abstract: Short-rotation woody crops (SRWC) can grow on marginal and disturbed lands that are otherwise not suitable for agriculture. Such land-use diminishes competition for current agronomic land by the biomass industry while increasing the overall productive land inventory. Surface mining is a prime example of such lands, where the reclaimed mine lands are rarely suitable for agronomic practices. Incorporating SRWC systems as a viable post mine land use alternative increases the potential for biomass production and restoration of natural resources. Moreover, SRWCs may provide an economic stimulus to revitalize local economies, counterbalancing the financial impact of the declining coal industry. A phyto-recurrent selection study was established to study the suitability of different hybrid poplar genotypes to surface-mined lands in the southern coalfield of West Virginia. Sixty different hybrid poplar genotypes belonging to seven genomic groups were planted at a recently-reclaimed mine site near Marmet, WV (phyto-recurrent selection cycle 1). After the first growing season (126 days after planting), clonal survival ranged from 19 to 100%, that of genomic groups ranged from 56 to 100%, and stand-level mean survival was 75%. On average, height and diameter were nearly six times greater for the six most-productive genotypes relative to their least-productive counterparts. Height ranged from 6.6 cm [*P. trichocarpa* × *P. deltoides*) × *P. deltoides* ‘NC13470’] to 38.3 cm (*P. nigra* × *P. suaveolens* subsp. *maximowiczii* ‘NM2’) and the stand-level mean was 23.1 cm, while diameter went from 0.6 mm (‘NC13470’) to 3.6 mm (‘NM2’) with a mean of 2.3 mm. In May 2015, cycle 2 was established, consisting of 32 of the original 60 genotypes. Those data are currently being summarized and will be presented at the conference. Results from both growing seasons will be integrated to evaluate survival and growth of the different clones and as a viable potential plant material for establishment of SRWC on such sites.

Additional keywords: biomass, short-rotation woody crops, phytotechnologies, Populus, post mining land use, reforestation

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² Amir Hass, Assistant Professor, West Virginia State University, Agricultural and Environmental Research Station, Institute, WV 25112; Ronald S. Zalesny Jr., Research Plant Geneticist, USDA Forest Service, Northern Research Station, Institute for Applied Ecosystem Studies, Rhinelander, WI 54501; Dharmesh Patel, Senior Lab Specialist, TechLaw, Inc., Edison, NJ 08837.