

Determination of Optimum Rotation Time for Maximum Biomass Production of Fast-Growing Hardwoods

속성수를 이용한 단벌기 바이오매스 생산에 있어 최대 바이오매스 생산을 위한 적정 수확령의 결정

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It is important to determine of optimum rotation time of fast-growing tree species for the production of maximum biomass used as raw materials of bioenergy. Twelve clones of *Populus* and *Salix* spp. were planted in abandoned agricultural land in 2009 with two different rotation times -one or two-year rotation- and compared biomass production. Survivals of all clones were successful in 2010. The quantity of harvested biomass varied with clones as well as rotation time. Biomass production of one-year rotation clones in 2009-2010 ranged from 4.16 to 12.36 ton/ha/year. In comparison, biomass production of two-year rotation clones on 2010 ranged from 3.53 to 15.97 ton/ha/year. The best clones for biomass production were 'Clivus' of *Populus alba* × *P. glandulosa* in one-year rotation site and '97-19' of *P. deltoides*(Lux) × *P. deltoides*(Harvard) in two-year rotation site. Determination of optimum rotation time was difficult because responses of poplar and willow clones to rotation time were different among clones. In general, one-year rotation was better in only *P. alba* × *P. glandulosa*. Other clones were better in two-year rotation. Considering production cost of biomass, two-year rotation is better. However, continuous monitoring for dynamics of biomass production is needed.