



## Optimizing the use of bamboo biomass for energy and fiber from small-scale plantations in Thailand

András Darabant (1,2), Maliwan Haruthaithanasan (1), Wanida Atkla (1), Tapa Phudphong (1), Eakpong Thanavat (1), and Kasem Haruthaithanasan (1)

(1) Kasetsart Agricultural and Agro-Industrial Product Improvement Institute, Kasetsart University, Bangkok, Thailand (darabant@gmail.com), (2) Institute of Forest Ecology, Department of Forest and Soil Sciences, BOKU University, Vienna, Austria

Farmers in Thailand have recently started to establish bamboo plantations on marginal land, aiming at utilizing them for bioenergy and fiber.

On two sites in eastern Thailand, first-year yield data of *Bambusa beecheyana* and *Dendrocalamus membranaceus* plantations indicated vast differences between sites (1 vs. 18 t\*ha<sup>-1</sup>\*a<sup>-1</sup>), but none between species. In terms of feedstock quality for power plants, High Heating Values (19.2 to 19.5 MJ\*t<sup>-1</sup>) did not, but culm moisture contents did differ between species (51% for *B. beecheyana* vs. 45% for *D. membranaceus*), and culm sections (38% wet base at top vs. 55% at bottom). This gradient was stronger in *D. membranaceus*, which additionally showed significantly higher moisture content in internodes, as compared to nodes (46% vs. 43%).

Analysis of fiber yield and quality indicated better suitability of *D. membranaceus* as opposed to *B. beecheyana* to be used in the textile industry.

Our results provide guidance on increasing value addition to bamboo biomass by optimizing the allotment of different species and biomass compartments to different uses (bioenergy, fibers).