

Scientists to sequence Eucalyptus genome

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An ambitious international effort has been launched today to decode the genome of Eucalyptus, one of the world's most valuable fibre and paper-producing trees.

The scientific effort to characterize the Eucalyptus genome, uniting some two dozen institutions world-wide, is led by Alexander Myburg of the University of Pretoria in South Africa, with the support of the U.S. Department of Energy Joint Genome Institute. The information will be made freely available over the Worldwide Web.

Australian researchers will also be among the first to collaborate on the new research project. Dr Simon Southerton from Ensis, along with colleagues from the CRC for Forestry, played an integral part in the development of the proposal to the U.S Department of Energy.

Ensis is the unincorporated joint venture between CSIRO and New Zealand Crown Research Institute, Scion.

“This important and bold initiative will have long-term benefits for both the Australian plantation sector and the conservation of our native forests,” said Dr Southerton. “It will also considerably hasten the pace of research.”

Ensis' current project to identify over 100 Eucalyptus genes that influence wood development is one activity set to benefit from this international program. Ensis, with support from the Forest and Wood Products Research and Development Corporation, are looking for links

between alleles in genes in order to understand why Eucalypts are different.

“We are identifying the trees that have superior genes that influence the way wood is developed. Qualities like wood stiffness, density, pulp yield, responsiveness to stresses such as salt and drought and overall growth rates will be linked with particular genes, making future breeding programs more efficient,” said Dr Southerton. “Key issues such as climate change and environmental remediation will also be positively impacted by the increased knowledge of this important species” he said.

Eucalyptus is Australia’s contribution to the world’s forest industries and virtually all Eucalypts are endemic to Australia. The genus, comprising over 700 different species, includes some of the fastest growing woody plants in the world. At approximately 18 million hectares in 90 countries, it is one of the most widely planted genus of plantation forest trees in the world.

The international sequencing program will be coordinated by the Eucalyptus Genome Network, EUCAGEN, involving more than 130 scientists from 18 countries.

Dr Simon Southerton, who heads tree molecular breeding research in Ensis, said the availability of the genome sequence will accelerate progress in understanding the genetic control of wood properties which in turn determines the profitability of Eucalypt plantations world wide.

“This expands our horizons considerably and will turn our Hottest 100 project into the Hottest 1000, benefiting the forest industry enormously,” he said.

Source: CSIRO

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