

# RE-FORESTATION

## TREEPLAN - breeding better genetics for today and tomorrow

NATIONAL TREE improvement programs in pines and eucalypts have developed genetically superior seed and plants for replanting and establishing new plantations.

Several major research initiatives funded by the Southern Tree Breeding Association (STBA), its members and FWPA, have shown that improved genetics results in trees that grow faster, have better tree form, improved wood properties, and can tolerate a wider range of environmental conditions.

The objective of the STBA breeding programs was to develop trees that improved the efficiency and economic returns from growing trees in plantations for structural and processed timber products, pulp and paper.

STBA general manager Dr Tony McRae said the focus was on improving net present value per hectare, rather than just making improvement in the biological traits of trees. "It's the combination of commercially important traits which is important to maximise economic return, and the relative importance of these traits can change with each region, production and processing system," he said.

"Major advances in genetics have been made through the adoption of the TREEPLAN genetic evaluation system for undertaking industry-wide analyses of tree performance data. Put simply, it allows us to identify the few very best trees for producing seed and plants from the millions available in trials," Dr McRae said.

"TREEPLAN is now used in Australia and Sweden for national analyses of seven species using data collected over 60 years in some 27 tree improvement programs. The STBA and industry partners are also using pilot studies to road test the software and broaden its application to other species and programs, such as subtropical hybrid pines and maritime

pine. The research project has successfully harnessed innovation from the plant and livestock industries, using the combined skills of tree breeders, researchers, and plant and animal geneticists to build a universal platform for data analysis in trees," he said.

By fast-tracking the selection of breeding stock for pine and

eucalypt plantations, TREEPLAN is contributing to a doubling of the plantation sector's rate of genetic gain. On average it costs companies about \$20 per hectare at planting to develop and access improved genetics through the national cooperative, while the returns at harvest can be thousands of dollars net present value per hectare.



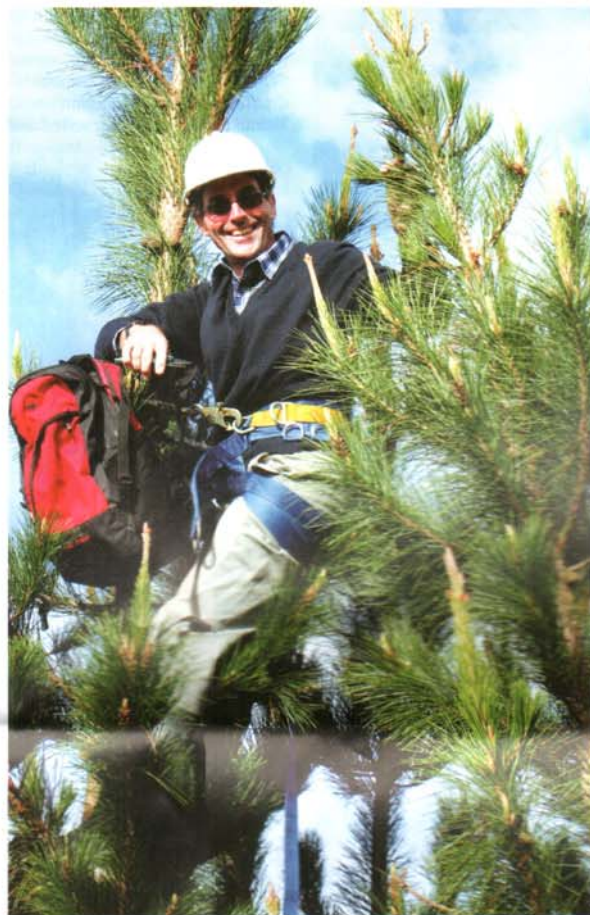
■ Flowers of radiata pine used in cross pollination to produce the next generation of genetically improved trees.



■ Dr Harry Wu and Dr Milo Ivkovi? inspect a big tree in a genetics trial at Mount Gambier.



■ March 2009: ForestrySA harvesting Radiata pine near Mount Gambier.



■ Peter Buxton (Pine Breeder) collects scions from a tree with superior genetics for grafting into seed orchards.

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