

## PROGRESS WITH THE ROLLING FRONT IN RADIATA PINE

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Breeding of radiata pine in Australia began in the 1950s with plus tree selection and the establishment of seed orchards by various companies and state and federal agencies. The STBA breeding cooperative, established in 1983 in South Australia, continues to expand, consolidating genetic resources on a national basis, providing cost efficiencies and enhancing the rate of genetic gain. The breeding program moved to a rolling front in 2000, where activities are done on an annual basis. Each year, parents are crossed, new progeny trials established, some existing trials measured, new data incorporated into genetic evaluations, and new parents selected on the basis of the updated genetic values. Prior to this, discrete generation breeding was the norm, with breeding, testing and selection largely completed before the next cycle began. Implementation of a rolling front has not been without its challenges. Data are generated on trees for a range of traits assessed at different ages in different years and at different locations. The degree of genetic linkage across previously independent programs also varied depending on the number of parents exchanged and/or the amount of collaborative testing done over time. Assessment and measurement protocols also changed over time and varied among breeders. Data imbalance and imperfect information is the norm. Nevertheless the rolling front has resulted in efficiencies and the authors will share some of their experiences of the past 15 years. Technical challenges and solutions for management of co-ancestry will be discussed, the operational benefits identified, and improvements in the rate of genetic gain and return on investment highlighted.