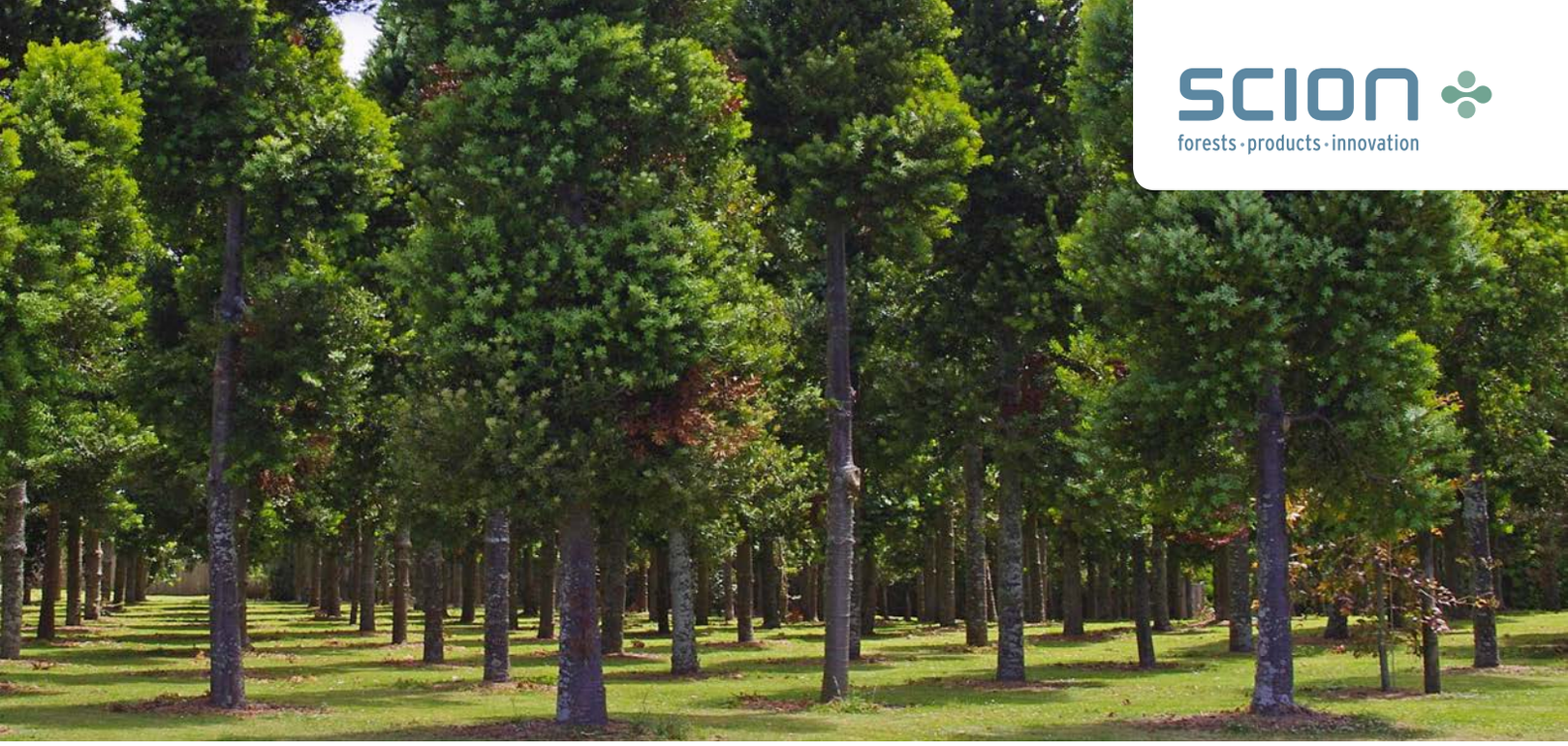

INDIGENOUS SPECIES – KAURI

Indigenous species, such as kauri, can provide commercial and economic opportunities for landowners and forest growers seeking to diversify.

A PROMISING ALTERNATIVE FOR COMMERCIAL FORESTRY

Our research indicates that indigenous species such as kauri *(Agathis australis)* may be significantly more productive than expected, making them a viable alternative to radiata pine for commercial forestry.

Studies have shown that many desirable attributes of old-growth kauri can be found in young trees comprised mainly of sapwood, in both natural and planted stands.

Scion is developing business cases for indigenous species to help growers make comparisons with other forest species and to support their investment decisions.

Growth and productivity. Growing kauri in plantations began in the 1940s and continued under the Forest Service until the late 1980s. The growth and productivity of kauri in these plantations was expected to resemble growth in natural stands. Our research, along with the development of a growth model in 2011, showed this was not the case.

Kauri could grow much faster than expected when established on good quality sites. The average productivity in planted stands was 12-20 times that in natural stands at age 50, with an MAI of 17.6 m^3/ha/yr from age 20-60. The best stands had an MAI of 20.8 m^3/ha/yr over the same period. Breeding and silviculture research is likely to increase this.

Kauri has also been shown to respond positively to thinning in natural and planted forests, even after long periods of suppression.

Good rates of return. A kauri calculator *(http://kauricalc.ffr.co.nz),* developed through the Future Forest Research Diversified Species programme, allows growers to calculate the economic outcome from planted kauri, and to test various management regimes.

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A 17-year old kauri stand in the Bay of Plenty

Kauri at 40-years old

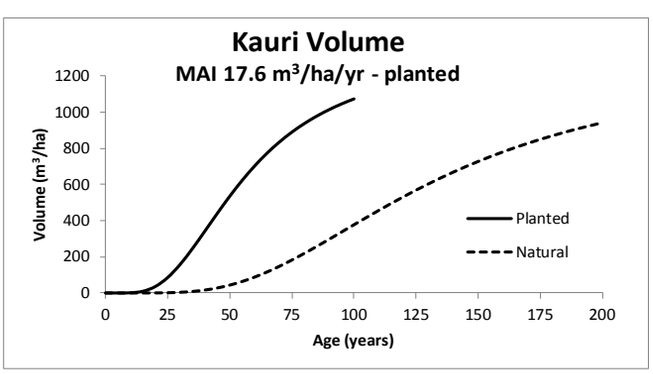
Internal rates of return of four to eight per cent have been shown from rotations of 60-80 years with early value recovery from commercial thinnings.

Wood quality. Wood quality of fast-grown kauri has been investigated. The majority of wood produced in 60-80 year rotations is likely to be sapwood.

When tested this has many of the attributes of old-growth heartwood, excluding natural durability. Wood density has, to date, been shown to be consistent across age, growth rate and sites.

Looking to the future. Research to improve seedling quality, reduce establishment costs and to increase early growth is ongoing.

The issue of kauri dieback in relation to the species' long-term survival and plantation productivity is also being investigated. While a threat to the species, plantations of kauri outside its current natural range may also be a means of conserving the species while still maintaining economic activity.



Medium predicted yield of kauri in natural and planted forests

ABOUT SCION

Scion is a Crown Research Institute that specialises in research, science and technology development for the forestry, wood product and wood-derived materials and other biomaterial sectors. Scion's purpose is to create economic value and contribute to beneficial environmental and social outcomes for New Zealand.

We offer research and development services across the entire forestry value chain, including forest and climate change, forest health and biosecurity, rural fire research, forest management and tree improvement.

CONTACT

Greg Steward
Indigenous forest specialist, Scion
Email: greg.steward@scionresearch.com
Phone: +64 7 343 5632

www.scionresearch.com/services

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