

Farmer experiences in farm forestry

Ken and Jan Ritson, 'Daneholme', Boyup Brook

Seeing sheep contentedly grazing clover based pastures under wide spaced, high pruned pine trees at a Mundaring agroforestry demonstration eight years ago captured the imagination of Boyup Brook farmers Ken and Jan Ritson.

Ken, a third generation farmer, and his wife Jan run a merino breeding/wool enterprise on historic 'Daneholme', a 739 ha property on the banks of the Blackwood River east of the Boyup Brook town site.

Although it was initially the attractive landscape at Mundaring that inspired the Ritsons it was the landcare and income diversification benefits of trees that led them to take up farm forestry a year later.

With careful design and planning the Ritsons have now integrated pines and blue gums on their farm while fencing and protecting valuable native vegetation in a series of corridors.

Ken firmly believes planting trees and fencing his remnant vegetation has increased productivity and improved pastures for his 5500 sheep. This year (1999), the Ritsons expect to produce 170 bales of merino wool (average 19.9 micron). Ken estimates his sheep will produce 43 kg of clean wool per hectare. The lambing average is 96 per cent.



Ken and Jan Ritson taking growth data for 5-year-old radiata pines. These trees prevent wind erosion of soil in summer and have helped to lower watertables.

Background

Ken's grandfather took up the land at 'Daneholme' in 1908 and it has remained in the Ritson family's hands ever since. So it was preserving the past and protecting the future that was uppermost in Ken's mind when he and Jan returned to the farm in 1977.

As a former soil technician with the Department of Agriculture, he relished the opportunity to draw up a comprehensive soil conservation plan for the property which contained a range of soils from gravelly loams through to deep sands. Most of the average rainfall of 650 mm falls between April and October, leaving very little for the summer months.

Recognising the importance of the native vegetation, Ken and Jan immediately began a program to fence remnants of bush and granite outcrops on the farm. Small areas of salt were also fenced and planted with salt tolerant puccinellia grass and tamarisk trees.

Getting into agroforestry

In 1994, after seeing the pine plantation trial at Mundaring, the Ritsons were keen to take part in the federally funded West Coast Pine Timberbelt Scheme being run by the Department of Conservation and Land Management (CALM).

An 18 ha area on their property was planted as part of a three-site trial which included farms at Busselton (dairy) and Dandaragan (sheep/wheat/grain). CALM aimed to demonstrate integration of pines into individual farm systems.

See TreeNotes and other WA farm forestry information at www.agric.wa.gov.au/programs/srd/farmforestry/

Setting up the trial

Ken and Jan had an area in mind for the trial. The 'sandhill' as the name suggests was a large hill comprised of light sandy soils which produced little pasture and was subject to wind erosion in summer.

Species selected were *Pinus radiata* (radiata pine), *P. pinaster* (maritime pine) and *P. taeda* (loblolly pine), of which 200 were planted.

Eighteen hectares of the 50 ha paddock were planted with 1350 stems/ha in belts, north/south along the contour of the hill. Lupins and oat crops were grown in the 26 m alleys between the trees allowing Ken and Jan to continue using the land in conjunction with the pine trial.

With an eye for design the Ritsons retained some stands of native marri and jarrah to soften the visual effect of the plantation and maintain native trees on the skyline.

Ken says the trees have so far met the objectives he had in mind for the site - to get more efficient use of rainfall on the water recharge site, create a biological filter to protect streams and protect the fragile soils.

Water monitoring over the past four years indicates the level of a deep groundwater table underneath the plantings is lowering. Perched water tables also show signs of dropping and waterlogging at the change of slope has been greatly reduced.

Some early difficulties

Problems experienced include tree losses through native budworm infestation in the first year of planting, missed weed control on a section of the trial leading to tree deaths, and wind throw on wet sandy soils. In 1995, 750 trees destroyed by native budworm were replaced. Many of the pines were bent over during an episode of strong winds in the second year after planting. Ken was able to manually straighten the trees and compact the soil with the tractor. Rabbits and grey kangaroos were controlled as required. Ken has also noticed sheep will eat *P. pinaster* bark in preference to *P. radiata* and suggests keeping stock out of pine plantations for at least the first four years. He says this is one of the downsides of pines. Experience suggests young sheep can be returned to blue gum (*Eucalyptus globulus*) plantations the year after planting.

Set-up costs

Under the terms of the pine trial, CALM provided the funds and expertise for the land evaluation and design in preparation for planting. This included soil,

geophysics and ecology analysis along with assessment of farm management objectives. CALM also supplied the seedlings. Agriculture Western Australia helped with hydrology assessment and economic analysis. Ken and Jan were responsible for ripping, mounding and planting the trees and ongoing management since then.

Ken believes the most valuable information collected during trial establishment was the soil survey. Soil cores were recovered by hand auger to a depth of 2 m on a 100 m x 100 m grid. The results were then combined with aerial photography to give an accurate picture of soil types. This made species selection for each area easy. The input from CALM landscape planners was also valuable but Ken says the geophysical survey (to develop conductivity, magnetic and radiometric maps) was too speculative at the time to be any more than a guide.

Income estimates

The pine trial is not expected to generate any cash for the Ritsons until year 15. Ken expects first thinnings at years 10 to 12 will cover the costs of thinning. The wood will be sold locally for the treated post market or for pulpwood. From 15 to 35 years the trees will be progressively thinned for sawlogs. Ken aims to grow on about 80 stems/ha (this equates to 220 stems/ha within the belts), for the sawlog cut at around year 35.



Five-year-old *P. pinaster* (maritime pine). Outside two rows of each belt are pruned to two-thirds of tree height. This will maximise the production of knot-free timber and allow more sunlight through for pasture production.

Given the rainfall and site conditions at Boyup Brook, Ken's rate of growth for the *P. radiata* is likely to be about 20 cubic metres/ha/year. The *P. pinaster* trees are expected to yield considerably less per hectare per year although he says it is probably too early to predict growth rates. Current estimates put the best case for *P. radiata* returns at up to \$26,000 per ha over a 30 year rotation in southern districts such as Bridgetown. Estimates for *P. pinaster* on poor sites in the Moora district are \$6209 per ha.

Bluegum plantings

After taking the first step into commercial agroforestry with the pine trial, Ken and Jan decided to take up a CALM blue gum sharefarming scheme last year. Thirty hectares of bluegums (*E. globulus*) have been planted at conventional 4 m x 2 m spacings (1250 stems/ha) on two sites.

What appealed to Ken and Jan was the flexibility CALM gave them to design plantings to suit their overall farm needs while capturing landcare benefits.

A 12 ha belt has been planted along the length of a fresh streamline. In the salt affected areas Greenskills workers planted mildly salt tolerant species such as *Corymbia maculata* (spotted gums), *E. occidentalis* (flat topped yates) and *E. camaldulensis* (red river gum) within the plantation area. In this way the Ritsons will reap the landcare benefits while making an annual income from their trees.

The second area planted is an 18 ha prime blue gum site with deep gravelly soils on an upland slope. In this section the blue gums have been planted to link three areas of remnant bush. The bush is now protected within the plantation fence and the blue gums serve as a corridor for native animals and birds moving from one area of the farm to another.

This site also adjoins a 20 ha stand of remnant vegetation previously fenced from stock and links up with bush on a neighbouring property.

Income

Planting the blue gums after 10 years of depressed wool prices has given Ken and Jan a guaranteed annual income. The annual returns to farmers entering into share farming schemes are largely dependent on negotiations between the landholders and the companies involved. Rainfall and soil types are two of the main bargaining points. Generally prices range from \$90/ha/year to around \$210/ha/year for better sites.

The future

Ken and Jan are considering the options for planting more commercial trees on their property. At present, 183 ha (24 per cent) of their home farm is remnant native vegetation which they are gradually fencing off to protect it from grazing livestock. Forty-eight hectares of the remaining 556 ha have been planted with woodlots and timberbelts. The area devoted to trees will be increased gradually as the need arises. With a 339 ha lease nearby, livestock graze 606 ha, while crops comprising 100 ha of oats, 80 ha of canola and 80 ha of barley are planted on the remaining area.

According to Ken a lot depends on future wool prices and whether any of their four children are interested in taking over the farm in the future. He says tree planting programs affect the landscape for up to 35 years.

In the meantime the Ritsons will continue their program of fencing native vegetation on the farm and enhancing the native trees and shrubs around their homestead. In 1996 they were among about 25 farmers in the Boyup Brook eastern catchment area to collectively undertake a total of 45 km of fencing to protect 400 ha of remnant bush within the eastern section of the shire.

Ken's and Jan's thoughtful 'whole farm' approach to planning has seen them successfully integrate various tree species on their property to bring landcare benefits and income while maintaining and enhancing habitats for stock and native animals.

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