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AGROFORESTRY RESEARCH

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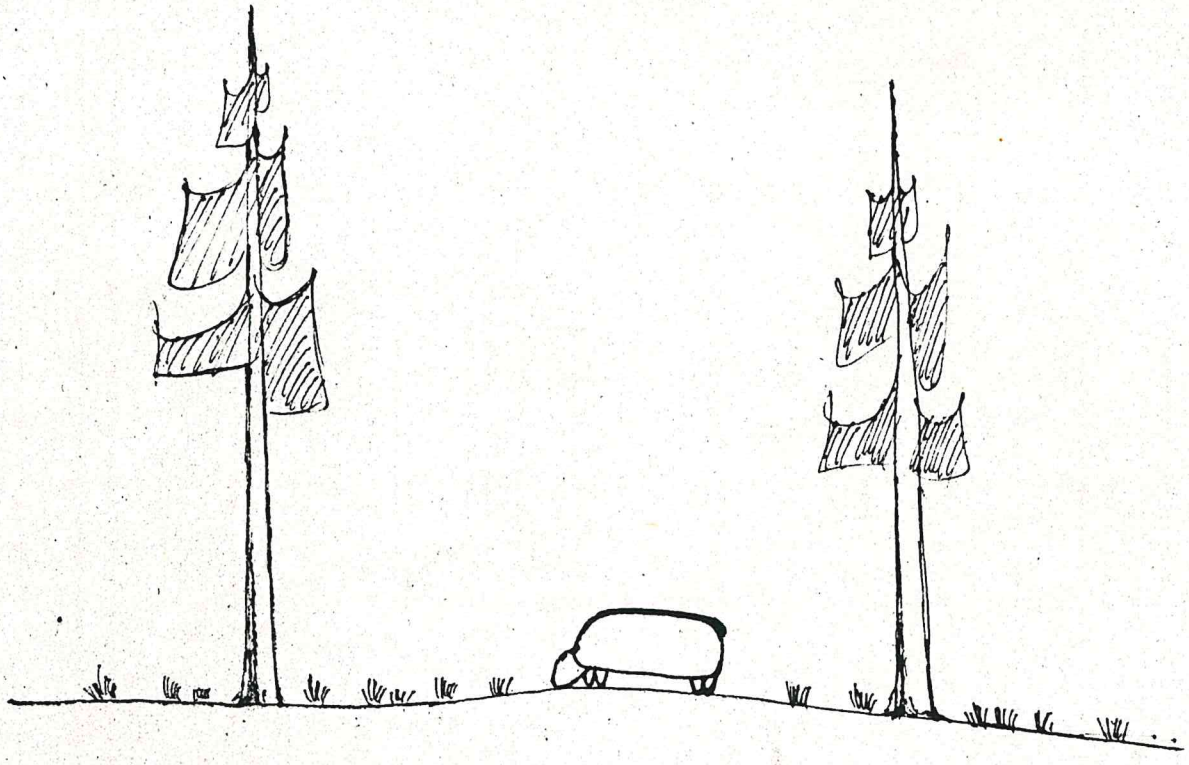
WHAT IS AGROFORESTRY?

"Agroforestry" is a term used in a broad sense to cover a wide spectrum of appraoches for integrating trees with farming. Types of agroforestry range from a fully integrated system such as grazing under widely spaced pine trees to strategically placed belts of trees around paddocks for shelter and protection.

The integration of trees and farming is not new as it has been practised for 1000s of years, however, it is only recently that the importance of agroforestry has been reassessed.



WHY AGROFORESTRY?

In high rainfall areas of the South West (900 - 1400 mm per year), tree growth is rapid and increasing numbers of farmers are seeing trees as a way of diversifying their income by producing timber and other products.

Agroforestry has a role to play in controlling stream salinity in catchment areas. The majority of catchments supplying water to the metropolitan area and other centres, fall within the medium rainfall area of the South West (900 - 600 mm per year). However soils within this zone contain high levels of salt. Where significant ares of forest have been cleared, such as in the catchment of the Wellington Dam, salinity problems have developed.

Agroforestry can provide protection for soils susceptible to

erosion as well as shelter for stock and crops. Within the wheat belt (600 - 300 mm rainfall per year) in particular, the combination of light sandy soils, overstocking in late summer and strong winds has caused severe wind erosion on many farms in recent years. Trees are effective at controlling erosion while producing a range of useful products.

Timber for farm use, such as posts, poles and firewood, is an important product from an agroforestry area. While trees can also produce nuts, fodder, fruit and honey, strips of vegetation retained around paddocks can be managed to produce dry native flowers for commercial sale. Less tangible benefits such as encouraging bird species, and enhanced aesthetics, can be important too.

AGROFORESTRY RESEARCH

The Forests Department has a research officer working on agroforestry on a full-time basis. The research program aims to quantify the potential benefits of agroforestry, with most projects being co-operative ventures with either the C.S.I.R.O. or the Department of Agriculture. There are three main areas of the Forests Department's agroforestry research program.

1. Agroforestry for timber production and farming

Trials in this area of investigation are located in high rainfall areas (900 mm+) where increased productivity is the main aim. Most trials are located on State Forest being cleared for the Donnybrook Sunkland Pine Plantation Project. The work is concentrating on the pine/grazing form of agroforestry (widely spaced Pinus radiata) and there are two main types of projects;

(i) Fundamental research to determine such aspects as the relationship between tree density and pasture growth, between tree density and timber volume produced, and between pruned height and pasture and tree growth.

(ii) The second type of project is that involved with developing management methods for agroforestry; pruning and thinning techniques and ways of dealing with debris.

The main trial is a joint Forests Department/Department of Agriculture trial in the Jarrahwood Plantation, S.E. of Busselton. Timber and agriculture production are being measured for a range of combinations ranging from open pasture with no trees to dense plantings of trees with little pasture.

2. Agroforestry for salinity control

A number of important hydrological operations such as how many trees and where they need to be planted to achieve control of salinity need to be answered before agroforestry will be used on a broad scale. The P.W.D. & C.S.I.R.O. are studying these questions. However it may be some time before conclusive findings are obtained. In the meantime the Forests Department is evaluating some agroforestry options with trials in the catchments of the Wellington and Mundaring Dams. The trials in the Mundaring area were set up in the late 1970's in conjunction

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with the C.S.I.R.O. and are studying questions such as; what is the total production for a range of species, tree densities, and patterns of planting? Trials established east of Collie in 1981 on farming land planted with trees under the P.W.D. salinity control scheme, complement this work.

3. Agroforestry for sand-plain conditions

The Forests Department and the Department of Agriculture set up an agroforestry trial at Esperance in 1980. The trial aims to test and demonstrate various approaches to agroforestry with special emphasis on systmes that could be applicable to farmers in the Esperance area. The range of treatments under test covers single, triple and five row strips, 5 to 38 metres apart. Cropping and grazing potentialwill be measured as well as the performance of P. radiata and P. pinaster.

Under Esperance plain conditions farmers are concerned about wind erosion, salinity and high lambing losses. A seminar held at Esperance in March 1982, entitled Sand, Salt & Farming, highlighted these concerns and strongly acknowledged the important role of trees in helping to solve these problems. That farmers want to be able to continue cropping is an important consideration when designing agroforestry systems for the Esperance region. As Esperance is a long way from timber producing areas, the possibilit of growing timber locally interests many people.