

Weeds in the Australian plantation industry

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The most recent inventory of the forest estate shows that Australia has a total forest area of more than 157 million hectares, made up of about 156 million hectares of native forests and just over one million hectares of plantations (Department of Agriculture, Fisheries and Forestry Australia, Annual Report 2002).

The plantation industry in Australia has exploded over the last five years due to the Federal Government's 2020 Plantation policy guidelines and the concomitant guarantee of 100% tax deductions, negative sentiment to the logging of native forests in Australia and the decreasing production of wood products from native forests world-wide.

Only a few Australian companies dominate the plantation industry and they all have plantations in various states. Overseas plantation companies have also invested substantially in the industry.

Australia is unusual in OECD countries in that our financial institutions do not have significant investments in the asset class called Timberlands. Internationally, this asset class is looked upon as safe and conservative like government bonds.

The Australian plantation industry increasingly has to adopt strong sustainable environmental management systems due to market sentiment. There are already markets that only accept wood that has a Forest Stewardship Council accreditation. The Forest Stewardship Council is a de-centralised organisation that promotes worldwide sound forestry management.

Australia is looked upon as having two of the four favourable sites in the world to grow blue gums (*Eucalyptus globulus* Labill.), there is a premium paid for the wood. Recently there has been large areas of tropical plantations established around Gladstone, Darwin and some islands of the north coast.

The large areas of blue gum (*E. globulus*) plantations in southern Australia are on cleared land. Due to the geographical spread of the company's plantations, there is a rich diversity of weeds to manage and regional management systems have been developed. This paper will concentrate on the differences rather than the many similarities with broad acre weed management and weed issues. An example of a difference

is that significant decreases in plantation productivity have been recorded on land cleared within the last ten years. Decreases are thought to be due to intact native roots deep in the soil profile inhibiting root penetration and residual phytotoxic effects of the native roots. Also kikuyu grass is a major weed for the industry but considered a friend to traditional farmers with stock.

The weeds of general broad acre farming are inherited by the plantation industry. Significant weed control is achieved during establishment of the plantation.

Weed control management systems used are 'green manuring', broad spraying and strip spraying weeks before planting. The program can often be over 5000 ha for one licensed contractor with over 50,000 ha sprayed Australia-wide annually in some recent years.

Residual herbicides are used strategically and there is a prescriptive Code of Practice for the industry to follow.

The delivery of the herbicides by aeroplanes has caused concern for neighbouring farmers and there are continuing discussions about the issues between communities, councils and companies involved. Aerial spraying, over-spray and stream run-off are the main issues of concern to outside interested parties.

First and second year weed control are normally practised even though there is evidence that other factors of production that are limited (e.g. water) have an over-riding productivity effect. Measurements have shown over the ten year rotation, first and second year weed control is potentially insignificant in lower rainfall regions. The trees have a shadowing effect and the lack of light for up to eight years means that there is very little problem with weed control in a healthy plantation with a reasonable Leaf Area Index.

The industry is an early adopter of photogramatics and the differential global positioning system (dGPS). Along with the introduction of variable rate spray rigs, weed pre-mapping is looking like the future new direction for the industry driven by chemical cost savings, the use of sound environmental practises and establishment weed control effects on seedling survival percentages.