

THE WEED SITUATION IN NEW SOUTH WALES

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New South Wales occupied 10% of Australia's land mass contributing 40% of the total annual net value of the nation's agricultural production. Despite this comparatively favourable ratio, estimates of an 'annual weeds loss' for the State vary from 75 to 150 million dollars. This is attributed to weeds causing reductions in the value of agricultural products by losses in yield and quality.

Some 1200 naturalized alien weed species occur falling into the grass, broadleaf and woody weed categories. A large number of indigenous species also belong to these categories and are proving to be more difficult to control, examples are Spear Grass (*Stipa* spp., *Aristida* spp.), Darling Pea (*Swainsona* spp.) and Galvanized Burr (*Bassia birchii*).

As to be expected, many and different weed species occur in the three main climatic zones, temperate, sub-tropic, and semi-arid. The dominance of seasonal rainfall changes from winter in the south to summer in the north, decreasing from a better than average annual of 50" in coastal and highland areas to about an annual 8" average in the far west.

Agriculture is largely confined to the temperate zone which embraces the eastern coast, the tablelands, and the western slopes. The western plains are used for grazing with dependance on native species.

Two major woody weeds are found in similar situations along the coast. Blackberry (*Rubus fruticosus* agg.) is dominant on the south coast and Lantana (*Lantana camara*) on the north. There is a gradation between the two and mixtures of both weeds are not uncommon. Along the tablelands and slopes thistles (*Onopordum* spp. *Carduus* spp. *Centaurea* spp. and *Cirsium* spp.) are prevalent in the south and thornapples (*Datura* spp.) in the north. Serrated Tussock (*Nasella trichotoma*) is a major weed throughout the tablelands and it appears that the summer grower, African lovegrass (*Eragrostis curvula*) may be a potential threat in similar situations on the northern tablelands. Bracken fern (*Pteridium aquilinum*) is a wide-spread persistent weed being difficult to control on non-arable lands and is considered by many farmers to be a major problem.

In grain producing areas located on the tablelands and slopes, Skeleton Weed (*Chondrilla juncea*) is the most serious weed. Also, the burrs (*Xanthium* spp.) and Paterson's curse and Viper's Bugloss (*Echium* spp.) can be found both in disturbed situations

and in poor quality pastures throughout the coast, tablelands, and slopes.

Irrigation is located adjacent to the main river systems, the major problem weed of irrigated crops is Barnyard Grass (*Echinochloa* spp.) Soybean production is affected by thornapples.

In the western plains Galvanized Burr is a most difficult weed problem. Other significant weeds are Tiger Pear (*Opuntia aurantiaca*), Bathurst Burr (*X. spinosum*) and Noogoora Burr (*X. pungens*). A small outbreak of Mesquite (*Prosopis juliflora*) is causing concern near Broken Hill.

The semi-arid zone, average annual rainfall less than 10", is a pastoral area with an economic problem caused by the need to control scrub regrowth. This regrowth is due to regeneration by means of seedlings and shoots from lignotubers.

A landowner's tolerance of weeds depends upon the amount of animal and crop protection needed. His requirements can change from the control of a specific weed up to replacement of the existing vegetation. If an infestation is overwhelming in the sense of a person's ability to cope, or a realistic control programme using ecological, chemical and physical means cannot be implemented because of an unfavourable cost/benefit ratio, the position can deteriorate to a 'learn to live with it' level of acceptance. In effect the weed situation is governed by a landowner's awareness and his response to the weed problem.

Biological control regarded by farmers as a panacea has been largely left to CSIRO and the Queensland Department of Lands and some success has been achieved for some alien naturalized weeds such as St. John's Wort (*Hypericum perforatum*), Tiger Pear, Prickly Pear (*Opuntia* spp.), Ragwort (*Senecio jacobea*), Groundsel Bush (*Baccharis halimifolia*), but serious indigenous weeds such as *Bassia* spp. and *Swainsona* spp. are not severely affected by known biological agents.

Many worthwhile contributions to weed control have been achieved by private industry especially in the introduction of new herbicides and spraying equipment. These have materially assisted in the development of weed control practices.

State Government researchers have worked on overall plant protection problems associated with specified variables limiting production. In agriculture, single weed problems have been studied in depth in pastoral, ley, and crop situations. Different approaches have produced significant contributions towards the economic control of major weeds including Wild Oats (*Avena fatua*, *A. ludoviciana*) and Skeleton Weed in grain crops, Serrated Tussock and Crofton Weed (*Eupatorium adenophorum*) in pastoral lands, and Barnyard Grass in rice.

Research into weed control in horticulture and forestry has defined satisfactory economic management methods.

Extension is undertaken by private industry, Government and semi-Government bodies, being in most cases processed in an effort to gain maximum impact. Although sophisticated requirements demand careful recommendation in the use of herbicides reported mistakes are thought to be at an acceptable level. Thus communication to the end user is fairly reliable, the labelling of registered herbicides proving its worth.

Legislation in New South Wales has not changed significantly since the last Conference except for introduction of the Aerial Spraying Control Act, 1969. Several Departments legislate for weeds under various Acts and in one case a section within a Department has separate provisions for weed control to permit thorough inspection of bananas for the disease Bunchy Top. Thus, no single authority has complete control over all weeds administration in New South Wales. The Local Government Act and the Prickly Pear Destruction Act are concerned with meeting the needs of the public.

It is contended that the advantages won by research, extension and legislation materially assist in reducing the weed problem in New South Wales, but the impact of over production and associated lower prices for farm produce is not helping the continuing need to control weeds. A combination of drought and still lower prices could lead to a further serious deterioration in the weed situation resulting in either a prolonged recovery after drought or more permanent damage especially to pastoral lands.