

However, the application of these results to other regions and situations is sometimes unsuccessful as the mode of action of the herbicide and its performance under varying conditions of soils, climate, and farming practices have not been elucidated.

The number of herbicides continually becoming available also creates an extension problem in that the adviser often has to recommend herbicides with which he has had more personal experience and which may not be as effective as newer herbicides.

#### WEED PROBLEM OF PASTURES AND GRAZING LANDS

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Potential pasture productivity reduction by a weed is seldom recognized until a major infestation occurs, this may apply for an individual property or on a much wider area. Widespread infestation of a weed tends to create an attitude of living with the problem and attributes of the plant are sought in justification.

#### THE PROBLEM PLANTS

This attitude of living with the problem is most marked in regard to grasses which form the basis of natural pastures of the State. Many grasses must be regarded as weedy, particularly those which produce vegetable fault in wool such as *Stipa* spp., *Aristida* spp., *Hordeum* spp. Other grasses, either native or introduced, are characterized by low productivity and include *Nassella trichotoma*, *Poa* spp., *Eragrostis chloromeles*, *Andropogon virginicus* and others. These grasses usually occur in low fertility situations and in most areas can be successfully replaced by improved pastures.

Broadleaved weeds cause losses in productivity by stock poisoning, *Swainsona* spp., reduction in value of animal products, *Xanthium* spp., *Galotia* spp., or by reduction of pasture production, *Bassia birchii*, *Silybum marianum*, *Onopordum acanthium*. These

considerations lead to more serious attempts at control by landholders and responsible authorities. Widespread infestations of *Bassia birchii* and *Swainsona* spp. in areas of low rainfall pose a very serious problem on economic grounds. There are attempts to attribute desirable characters to *Bassia birchii*.

Woody weeds occur frequently in pastures situations and include *Rubus* spp., *Rosa* spp., *Eucalyptus* spp. Many native shrubs, also occur in low fertility and low rainfall situations and include *Dodonea* spp., *Cassina* spp., *Eromophila* spp. and many others. Control of woody plants in areas of better rainfall is undertaken both by landholders and responsible authorities. Invasion of native pastures in areas of low rainfall by woody plants pose serious economic problems.

Research, extension, and administrative programmes of control are being undertaken into a number of problem plants of pastures and in respect of those which are noxious plants, progress has been made. The attitude of living with the problem has restricted action until a very serious infestation of the weeds has occurred.

#### DISCUSSION

The examples quoted must serve as a basis to outline what I believe are the principles which have applied in the research, extension, and legislative actions against pasture weeds. There is evidence of inaction until forced by certain economic pressures. Action has come from within, as is the case in regard *Stipa* spp. and *Aristida* spp.; from without as is the case with *Xanthium* spp.; or superimposed by government recognition of the problem as with *Nassella trichotoma*.

It is important to realize that serious anti-control attitudes develop when weeds infest areas to an extent of making major reductions in productivity. It is doubtful if these will prevent the eventual development of effective research extension and control programmes, but they slow them down. An important lesson seems to be that extension and control must be supported by research to provide a soundly based programme and to answer the non-action groups.

It is vital that economic studies become a part of, and a pre-requisite to, extension and control programme.

The success of any weed control programme will depend on the availability of the research results required to base a technically sound programme on, and the economics benefits likely to result.