

## **Major agronomic and horticultural problems facing Tasmanian agriculture**

Department of Agriculture, Tasmania

### **Pastures**

Within the high-rainfall areas of the State pasture production is limited by low winter temperatures. There is a need for continuing research aimed at increasing production during this period by the selection of improved legume and grass cultivars. A particular problem of dairy pastures is the lack of clovers resulting in low feed quality and nitrogen deficiency.

In the drier pastoral areas high-quality perennial pasture species fail to persist through a combination of moisture stress, competition and insect attack. Re-establishment of pastures by fallowing, full cultivation and resowing is effective but very expensive. Cheaper renovation by direct drilling and other methods of minimum tillage are highly unreliable as currently practised.

Fertiliser is a major cost component in the production of animal feed from pastures and the cost is increasing relative to farm prices for animal products. This has created a demand for improvement in the efficiency of fertiliser usage on pasture, particularly superphosphate and potash. More readily applicable and reliable techniques are required to assess soil residual values for phosphorus, sulphur and potassium and to relate soil and plant tissue tests to fertiliser needs.

Alternative grazing management strategies such as block grazing have demonstrated a potential for increasing animal production from pasture compared to the conventional grazing management systems in general use. There is a problem in obtaining wide-scale adoption of these new practices and a concerted extension effort is needed to achieve this.

### **Field Crops**

Cereals and grain legumes are grown mainly on the less fertile soils under dryland conditions where there is little competition from the more profitable processing crops, vegetables and poppies. Production and prices are governed by local market opportunities only and, apart from malting barley, by the prices of feed wheat ex the Grain Elevators Board, imported protein grains and meatmeal. Substantial yield increases in these crops by the use of irrigation have been demonstrated.

There is a need to develop more efficient irrigation strategies and to investigate further the use of minimum tillage techniques as means of increasing profitability in the production of cereals and grain legumes.

### **Vegetables**

Krasnozems in the North-west region of the State are intensively cropped with potatoes and other vegetables for processing. There is evidence that these soils are being mismanaged by misuse of cultivation machinery, over-cropping, over-irrigating and compaction by heavy harvesting machinery resulting in loss of structure and sheet erosion. It is also believed that these practices have contributed to the increased incidence of disease and suboptimal utilisation of moisture and plant nutrients.

There is an urgent need to develop cropping systems, including improved tillage and irrigation techniques, which will minimise disease build-up and the breakdown of soil structure.

Plant spacing and arrangement has been shown to be a significant factor in determining crop yield and product size. Increasing costs of seed and labour necessitate the development of more efficient seeding and transplanting equipment to achieve optimum plant densities and eliminate the need for thinning.

### **Fruit**

The uncertainties in the export markets for Tasmanian fruit, particularly apples, have a strong influence on the technical problems facing the industry. There is a need for the development and testing of cultivars with inherently high productivity and quality and characteristics that meet present market demands. Associated with these developments is the need for further research into time of harvest (maturity) and storage, particularly with controlled atmosphere storage and extension inputs into packaging, handling and storage to ensure the fruit meets the condition and quality requirements of various markets.

Production systems need to be optimised with respect to nutrition and planting, pruning, frost protection, crop regulation and harvesting.

Increased activity by agricultural engineers in adapting or developing machinery for mechanised harvesting of pome and berry fruits is seen as a pressing requirement. Modification to vegetable harvesting machinery is also needed to improve efficiency.

### **Weed Control**

The increasing cost and adverse public reaction to the widespread use of herbicides and other agricultural chemicals has increased the need to investigate alternative or supplementary methods of weed control in pasture, non-cropping and intensive cropping situations.

For pastures and non-crop situations, there is a need to undertake ecological and biological studies of the weeds involved in order to develop a management system involving alternative strategies, including biological agents for their control.

For intensive cropping situations, too much reliance is placed on chemical control and more extension effort is needed to increase the adoption of good management and cultural practices in conjunction with the accurate application of recommended herbicides.

### **Other**

Access to improved cultivars of horticultural plants in countries with a Plant Variety Rights scheme is restricted in the absence of complementary legislation in Australia and long delays may be experienced in plant material through passing through quarantine. These two situations create problems in industry response to changing market demands.