

Major agronomic and horticultural problems of the Northern Territory

Department of Primary Production, Northern Territory

Introduction

Some of the agronomic and horticultural problems of the Northern Territory are related to its diversity of environments and wide geographical dispersion of both intensive and extensive industries. These create problems for research and extension, industry communication and ancillary industry servicing.

Territory agriculture is dominated by a rangeland pasture-based beef industry with established management systems and infrastructure. These provide an opportunity for it to adopt the practical applications of improved agronomy and raise efficiency, stability and productivity.

In contrast, some of the infant or small cropping, horticultural and improved pasture industries require not only new agronomic systems, but also development of marketing, storage, handling and transport, service industries and locally skilled operators, and improved availability of land and finance.

Pastures

Over 95% of Territory beef production comes from native pastures, and about 85% from the arid and semi-arid rangelands.

Arid and Semi-arid Rangeland Pastures

Pasture quality is generally adequate for efficient beef production but the quantity of feed fluctuates widely, depending on seasonal conditions. Under extensive conditions few factors of production can be manipulated, grazing being the major one. There is some evidence that past grazing practices have led to pasture degeneration and soil erosion.

Insufficient is known about the ecology of individual species and range types as a whole. Species, range condition and trend, and resource studies are needed. Methodologies, both for research and practical application by range managers, must be improved.

- A better understanding is required of both the short and long term effects on pasture, stability and productivity of grazing at different rates and times of the year and under different seasonal conditions.
- Knowledge of the inter-relationships between pasture and stock management and productivity needs to be improved as a basis for the development of practical management strategies.
- Weeds are a hazard to continued productivity in some areas and development of biological control programmes is needed for widely-established weeds.
- The key objective should be to develop robust management systems which maximise beef production while maintaining the productive potential and stability of the rangelands.

Monsoonal Native and Improved Pastures

In part, the poor quality of most native pastures leads to the traditional 'cattle hunting' operation. As a result of economic and disease control pressures, beef production will increasingly depend on controlled management of native pastures and their integration with improved pastures and crops in new farming systems. Information is needed about:

- the stability, productivity and economic efficiency of the new systems;
- the grazing management of poor quality upland and higher quality flood- plain native pastures, improved pastures and crop residues;
- the control of woody and herbaceous weeds of pastures;

- a greater range of improved pastures, adapted to differing soil, climatic and seasonal flooding regimes and uses, with superior yield, quality and persistence;
- improved establishment techniques for both grasses and legumes;
- the fertiliser requirements of different species on different soils; . seed production, treatment and storage techniques.

Crops

Although a small cropping industry has persisted, major developments have failed as a result of inadequate agronomy, poor farming and financial management, the high cost structure and lack of servicing infrastructure. Off-farm factors are now receiving attention while agronomic improvements needed include:

- a better understanding of relationships between individual agronomic practices, and between crops, pastures and cattle;
- more effective and economical land clearing techniques;
- crop planting methods such as minimum tillage which reduce erosion and soil deterioration, improve plant establishment, save fuel and machinery, and improve timing of operations;
- greater knowledge about the physical limitations of soils and their management requirements;
- much more specific information on crop nutrition with respect to soil, crop, and the ley or continuously-cropped management system;
- better adapted crop genotypes;
- weed control techniques for conventional and reduced tillage systems; . an understanding of factors controlling crop and seed quality;
- agrometeorological limitations of dryland crops and water needs of irrigated crops.

Horticulture

With a wide range of arid and tropical climates, the Territory has the potential to supply a much higher proportion of local consumption and exploit interstate and overseas markets where it has seasonal marketing and production advantages. Outstanding agronomic needs include:

Fruit and Vegetables

- closer definition of the species with the best potential for commercial development;
- introduction, selection and reliable sources of varieties of tropical and temperate fruits and vegetables with improved yield, quality, climatic adaptation, and seasonal production characteristics;
- post-harvest storage and handling techniques suited to high field temperatures and long distance transport;
- mechanisation of production and handling to reduce labour costs;
- more specific information on crop management, including establishment, nutrition, pest, disease and weed control, irrigation and soil management.

Nursery, Cut Flowers and Horticultural Seed

- definition of species with the most potential;
- genotype improvement to meet or lead market fashions/needs; . improved nursery hygiene, and pest, disease and weed control;
- improved nutrition, propagation techniques, watering systems, and locally-produced growing media;
- shade house design and mechanisation of production and handling systems.