

Chapter 3 - Lessons from past attempts at large scale cropping development in Northern Australia

The following section provides a brief review of some lessons learnt from past attempts at large-scale cropping development in northern Australia. The purpose is not to dwell on the negative aspects of northern agriculture development but to extract guidance as to successful research and development processes when assessing the feasibility of a new industry such as irrigated cotton.

Bauer (1985a) gave three reasons for failure of large-scale commercial agriculture in northern Australia:

1. Distance.
2. Ignorance of the physical environment.
3. A reprehensible aversion to learning by experience.

Interestingly, Bauer's review was written at about the same time, as the Ord River was tagged 'a white elephant'. However, since 1985 there has been considerable improvement in knowledge and infrastructure such that, in many regions, the limitations of distance and ignorance of the physical environment have diminished significantly (e.g., soil surface management and soil nitrogen dynamics, road transport development due to tourism and other industries). Given cotton's chequered history in northern Australia, it is point 3 that provided the impetus for writing this chapter.

The following lists some salient points from past research and development directed at large-scale cropping in northern Australia. This information has been extracted from several reviews of past research and development in northern Australia (e.g., Bauer 1977 and 1985a, Mollah 1986, Robertson and Chapman 1985, Chapman *et al.* 1996) and from discussions with some of those involved in these developments.

- Clearly defined goals understood and accepted by all participating organisations.
- A systems approach is required.
- Agricultural researchers alone cannot be expected to provide an adequate basis for commercial success.
- 'Small-plot research is quickly subject to diminishing returns and resources are then best allocated to large-scale trials or pilot farms for limited periods.' (Robertson and Chapman 1985) 'The pilot industry formula, although no guarantee of profitable short-term production, provides at least an opportunity for researchers to encounter real problems of the industry so that there is a greater chance that they will ask the right questions' (Cox and Chapman 1985).
- Ease of importation of production technology and skills. (e.g., Sugar at the Ord River Cox and

Chapman 1985). This is important in the feasibility assessment and industry establishment phase.

However, once farming commences, locally based adaptive research will provide the main mechanism for problem solving and innovation.

- In many areas more success has been achieved with annual cropping in the dry rather than wet season (e.g., melons and other horticulture).
- This is a high cost region so higher value crops are needed.
- Successful perennial crops are harvested during the dry season (e.g., mangoes, sugar).
- The variable climate necessitates a modelling approach to research outcomes, (i.e., three-year studies may not be representative of the seasonal range), (e.g., Yeates *et al.* 2000).
- Failed developments have provided initial capital (land) for subsequent successful industries, (e.g., Ord Stage I, Lakeland Downs).
- Lack of capital combined with too rapid movement to commercial production has resulted in many failures (Bauer 1977).
- Infrastructure issues must be addressed and action taken by the commencement of commercial development. However during the large-scale trial phase lack of infrastructure due to small-scale can impact on costs and such costs must be borne as part of the evaluation.
- Large-scale trials can provide data for environmental impact assessment, the development of guidelines for sustainable management practices and best practices for management of chemicals and other inputs.

The previous attempt at cotton farming at the Ord River is unique for Australia because commercial industry failure was due to unsustainable pest management practices. Moreover the collapse of the Ord cotton industry acted as a disincentive for both cotton and irrigation development in the Kimberley and NT until recent years.

NT Kenaf - an example of R&D process for a fibre crop
The NT Kenaf R & D program conducted between 1987 and 1991 was an excellent example of an integrated approach to assessing the commercial feasibility of a broad acre fibre crop in northern Australia. The program was initiated by the NT Government and was managed by a body named the 'The Kenaf Task Force'. The task force initiated studies into production technology/agronomy, sustainable farming systems, climatic risk using a yield simulation model developed specifi-

cally for the project, processing, infrastructure, land and water availability, marketing, environmental standards for processing, commercial scale trials and whole industry economic analysis.

There were two main outcomes of these studies:

- The first was a portfolio for investment, which attracted commercial interest, although investment did not follow.
- The second was a package that could be used in the future for reassessing economic feasibility should economic circumstances change.

Unfortunately except for some of the agronomic and yield modelling studies most of the Kenaf Task Forces' work remains unpublished as registered files of the NT Government.