Haymaker - efficient production of irrigated lucerne hay

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Problems have been identified in irrigated lucerne hay production which limit average annual yield to 9 tonnes/ha. If improvements in irrigation and agronomic management and haymaking techniques were made, substantially higher average yields could be attainable, since some growers are already producing well over 20 t/ha, and yields in trials have reached 30 t/ha. During the late 1980's, a multi-disciplinary group was formed, which included NSW Agriculture officers and representatives of water users' groups. This group was named the Peel and Upper Namoi Valley Irrigation Project Team, but later came to be known as the 'Haymaker' project.

Project Objectives

The objectives of the project were:

- To achieve a 30%-50% increase in co-operators' average yields by optimising water use and improving lucerne nutrition,
- Reduce irrigation costs through improved efficiencies in energy use,
- Increase the proportion of prime quality hay produced through better pest control and improved haymaking techniques, and
- Produce Haymaker software suitable for use in the industry.

Project activities

An extension program was run by NSW Agriculture and QLD Department of Primary Industries for groups of irrigators using the Haymaker package. This relied on close interaction with farmers, and innovations such as a lucerne planner/ calendar and irrigation scoreboard. The project involved on-farm inspections by irrigation staff and agronomists, plus computerised comparative analysis of farmer records which identified potential areas for improvement. Follow-up visits to farms with results of the analysis, together with field days and media releases provided co-operating farmers with strong motivation to adopt improvements. The package as a whole provided:

- Computer analysis of grower records and comparative analysis
- A technical software manual for Haymaker co-ordinators
- A technical information kit and video for growers
- Accurate local rainfall and evapotranspiration information
- On-farm irrigation technique, irrigation equipment, agronomic fertiliser, weed, disease and insect control advice
- Quality testing of hay for feed value
- Structural and hydraulic assessment of irrigation soils.

Results

There was severe drought and critical water shortage in 1994-95 which curtailed project activities. However, results for the 'normal' seasons 1990-91 to 1993-94 were promising, and significant changes in farmer practices occurred:

- Average fertiliser expenditure by co-operating farmers rose from $6/ha to $39/ha, while average expenditure on insecticides and herbicides dropped from $13 to $7 per ha, possibly due to improved plant vigour.
- The cost of water used (an indication of irrigation water use) increased from $138/ha to $237/ha prior to the drought. Water-use efficiency improved by 32% (from 0.6 to 0.41 Ml/tonne).
- Hay quality improved, with the average percentage of Prime quality increasing by 15%. Medium quality fell by 20%, and poor quality by almost 67%.
- Average yield increased from 15 to 20.5 t/ha), and average gross margin increased by almost 88% (from $1,349 to $2,532/ha).
- Net grower returns largely attributable to the Haymaker project were estimated to be $2.76 million for the 1990/91 to 1993/4 period, accounting for 90 crops assessed on 50 Tamworth/Manilla farms.

Conclusions

The Haymaker concept was successful and has achieved significant change in irrigation practices, allowing valuable innovations to be successfully introduced. The original project is still functioning, although external funding ceased in 1996. However, the value of the project has been recognised widely, and the Murray-Darling Basin Commission has commissioned a three-year project developing best management practice for irrigated crops, adapted from the Haymaker concept.

Acknowledgment

The Haymaker project was assisted to its successful outcome with substantial RIRDC fund-ing from 1993 to 1996/97, which is gratefully acknowledged.