Irrigated Pasture Production in the Lower Macquarie Valley

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During 1992, a research project was conducted to determine the extent, role and productivity of irrigated pastures and fodder crops in the lower Macquarie valley. The ultimate objective of the project was to identify research and extension needs of irrigated fodder growers.

The project was undertaken by students and staff at the University of Western Sydney, Hawkesbury in collaboration with advisory officers of NSW Agriculture and producers in the Warren, Trangie and Narromine districts.

Methods

A combination of research techniques were employed to develop an accurate and comprehensive understanding of irrigated fodder production in the region. The following is a brief summary of these techniques.

(1) A phone survey of approximately 100 regional irrigators was conducted to identify those irrigating pastures and/or fodder crops on a commercial scale.

(2) A postal questionnaire was used to survey a group of 24 producers, comprising both riparian and scheme irrigators. This requested information on the physical, irrigation and enterprise characteristics of each property.

(3) Semi-structured interviews were then conducted with irrigators on visits to 18 properties. These were used to identify details of the individual farm systems.

(4) Following the collection of this initial data, the Local Consensus Data (LCD) technique (Yabsley, 1975) was employed. This drew on the collective experience of a small group of producers to establish the physical characteristics, parameters, management and productivity of a typical regional property using irrigation for pasture and fodder crop production.

(5) The final stage of the project used the focus group technique for producers to identify their needs for the future in the area of irrigated fodder production.

Results

Property statistics

The typical property as generated by the LCD technique covers 1400 ha and includes 400 ha of non arable natural pasture, 760 ha dryland arable land for winter crops and improved pasture, and 240 ha of irrigation. The mix of enterprises includes:

- dryland cropping (300 - 360 ha with winter cereals, grain legumes, oil seeds);
- irrigated cropping (40 - 80 ha, mostly lucerne for hay);
- sheep (4000 DSE - merino wethers and first cross lambs);
- cattle (2000 DSE - vealers and opportunity fattening steers).

The typical water allocation is 1000 ML. Water use and fodder types are shown in Table 1. About half the producers also grew some irrigated crops (soybean, sorghum or wheat) and 40% grew some summer forage (typically 20 - 40 ha of sorghum). The selection and area of irrigated crop or fodder types was determined by a complex combination of factors including personal preference, size of water allocation, financial situation, perceived profitability and soil type.

Roles and benefits of Irrigated sections

All producers used irrigated fodder areas for growing and finishing stock for sale. Secondary uses included conditioning breeding stock before joining and providing safe grazing areas for lambs during the period of

Table 1: Area and water use of irrigated areas on a typical property.

Production	Area	Water use	
	ha	ML/ha	Total ML
Lucerne for hay	40	12.0	480
Permanent pasture	40	5.5	220
Oats	80	1.8	150
Opportunity irrigated lucerne	80	as available off allocation	
Losses 15%			150
Total			1000

barley grass seed fall. Irrigation has played an important role in maintaining cash inflow over the whole year (in 'normal' seasons) and reducing fluctuations in annual income. It is the major contributor to income in dry years. Irrigation has also enabled features such as drought proofing, diversification and increased stocking rates to occur. Table 2 gives some measure of the productivity of irrigated pastures in the valley.

Discussion

The project has produced baseline data on the roles and productivity of irrigated pastures in the valley. The role of the irrigated fodder areas has shifted greatly in recent years from providing drought proofing to now being a fully integrated component of the farming system. Winter pasture (phalaris with subterranean and white clovers), opportunity lucerne and oats are irrigated in autumn and spring because they use water more efficiently than the lucerne hay crop which is irrigated through the summer months. Most producers acknowledged there was scope for increased productivity and irrigation efficiency with the irrigated pastures, but improvements are limited by the availability of water, labour costs and low commodity prices (especially wool and prime lambs). In fact, the lower input for irrigated pastures is seen as a key benefit in the current economic climate.

Table 2: The productivity of pasture systems on a typical property (with irrigated pastures) in the Macquarie Valley.

Criteria	Natural Pasture (Non Arable)	Dryland Improved (Arable)	Irrigated
Area (% of total)	40	40	20
Grazing days (% of total)	16	34	50
Mean stocking rate (DSE/ ha)	2.5	5.6	15.5

Note: Data is derived from both the LCD and semi-structured interviews

From the point of view of extension, producers expressed a need for booklets which provide existing material on irrigated pasture management. Producers regard the development of a programme of on-farm pasture walks as desirable but expressed doubts about the viability of farmer discussion groups for pastures due to time pressures. The farmers are concerned about possible problems with salinity in the future and feel more studies of grazing management and species adaptation are needed, but apart from these, no new areas of research needs were identified.

References

Yabsley, G. (1975). Local consensus data reports. NSW Agriculture Miscellaneous publication.