NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Irrigation Profile - Readers' Note

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NSW North Coast Region Irrigation Profile

compiled by Meredith Hope
for the Water Use Efficiency Advisory Unit, Dubbo

The Water Use Efficiency Advisory Unit is a
NSW Government joint initiative between NSW Agriculture and the
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1. EXECUTIVE SUMMARY

The *NSW North Coast Region Irrigation Profile* was developed from a study to obtain regional and industry-based assessments of water use efficiency (WUE).

The Profile details (where possible, by water source and region) what is known about:

- the number of licences
- the number of enterprises that irrigate
- the entitled volume or area authorised for irrigation
- the area irrigated and water used in total and by crop type
- irrigation methods
- irrigated crop yields
- value of irrigated agriculture in the NSW North Coast region.

Irrigation data in the public domain were collected from State and Commonwealth sources, published research and industry reports and unpublished reports. These data were assigned a reliability rating using a system developed by the National Land and Water Resources Audit (1999).

This profile does not attempt to develop or analyse regional and industry-based estimates of WUE. This will be carried out in a subsequent report.

1.1 An overview of irrigation in the region

The North Coast region is a narrow coastal plain, 150 km wide and 500 km long, bordered by the Great Dividing Range in the west and the coast on the east. The region extends north from the top of the Manning catchment to the Queensland border and has a total area of 60,000 km^2. The Tweed, Brunswick, Bellinger, Richmond, Clarence, Macleay and Hastings–Camden Haven catchments are the main catchments in the region.

The total farm-gate value of agriculture in the region was estimated to be $672 million (1996–97) with irrigated agriculture accounting for $330 million (table1). In the same year, livestock products from irrigation produced $80 million followed by fruit and nuts (excluding grapes) ($50 million).

In the North Coast region, irrigation is necessary during spring and early summer and during drought. Annual rainfall varies from 820 mm and 3,000 mm and irrigation is necessary during these periods to ensure enterprise viability.

The region is characterised by a diversity of enterprises. There is a large dairy industry scattered through all catchments in the region except Brunswick.

Table 1. Summary of irrigation data for 1996–97

Data for the 1996–97 season provide an overview of the availability of irrigation data. Where there were no data, information from other seasons has been presented.

Water supply	Total irrigated area (ha)	Total water used by irrigated agriculture (ML)	Number of irrigation licences	Number of enterprises irrigating	Yield of major irrigated crop (t/ha)	Value of irrigation ($ /million)
NSW total	1,150,000	7,700,000	24,000	7,850	na	2,500
All sources of water	14,100	nd *Likely to range from 12,000 to 70,000*	3,087	991	nd *13–13.5 (perennial pasture) no year*	330
Regulated	nd *125 (1989–90)*	nd *1,000 (1999–2000)*	49	nd *1,450 (1993–94)*	nd	nd
Unregulated	31,700	nd *11,000-54,500 (1989–90 to 1994–95)*	2,976		nd	nd
Groundwater	nd *1,300 (1993–94)*	nd *2,530 (80)*	336	nd *340 (1993–94)*	nd	nd
Farm dams	nd *7,100 (1993–94)*	nd	na	nd *550 (1993–94)*	nd	nd
Reticulated water supply	nd *20 (1993–94)*	nd	na	nd *30 (1993–94)*	nd	nd

nd = no data and na= not applicable

The subtropical climate along the coast is also suited to a wide range of high-value tropical crops including avocados, bamboo, bush food (for example, lemon myrtle), citrus, coffee, custard apples, cut flowers, grapes, herbs, kiwi fruit, soybeans, olives, macadamias, pecan nuts, bananas, blueberries, low-chill stone fruit, tea-tree, lychees, vegetables and passionfruit (Creighton *et al.* 1999). Most of these crops are irrigated to a greater or lesser extent depending on the volume and frequency of rainfall received.

Of the total number of surface licences and groundwater licences for irrigation in the State, 13% or 3,087 exist in the North Coast region (Table 1). Licences on unregulated rivers far outnumber groundwater licences and licences using water from regulated supplies.

Of the total number of enterprises irrigating in NSW, 26% (or 2,026) are in the North Coast region.

In 1996–97, about 14,100 ha were irrigated in the North Coast region (Table 1) and of this area around 56% was pasture. The total volume of water used could not be determined but is likely to range from 12,000 and 70,000 ML/y, depending on climate.

The amount of land irrigated on individual broadarea and dairy farms in the North Coast region is small compared with the rest of the State. In 1996–97, these farms irrigated an average of 43 ha, compared with an average for the rest of the State of 189 ha. Horticultural farms have much smaller irrigated areas, on average between 5 and 10 ha. There are many enterprises irrigating a small area of land, especially during the low-flow months of spring and early summer. The impact of the industry on the environment relates not so much to the total amount of water it extracts but to the timing of the extraction.

The dominant method used to irrigate pasture and lucerne is spray irrigation. A range of methods including drip, micro sprinklers and hydroponics are used to irrigate horticultural crops.

1.2 Irrigation data issues

A number of data issues were raised in the *NSW North Coast Region Irrigation Profile*. Generally, these relate to the scarcity of data, the lack of data at useful scales and the reliability of available data.

Scarcity of data

Data have been collected for different purposes in the past to those currently needed. Data required for natural resource planning and for the planning and management of the irrigation industry are either scant or missing. Better data need to be collected to inform the water-sharing debate and to assist industry development.

Lack of data at useful scales

Point-scale data collected by the ABS and ABARE are confidential and have been reported at SLA, catchment or Agro-Ecological Region (AER) scales. These scales limit how useful these data are for on-ground users.

Reliability

Reliability of data varied with collection strategy and by water source. For example, the area irrigated from all sources as shown in Table 1 was half the area irrigated from unregulated supplies alone. These data were collected by different agencies and different methods and this may have affected reliability.

ABS estimates of the area irrigated and number of enterprises irrigating should be treated with caution. According to ABS data, areas irrigated have declined between 1993–94 and 1996–97 both in the North Coast region and across the State. Other data suggest the opposite is true.

1.3 Conclusion

A more comprehensive and consistent approach to the collection of irrigation statistics is needed. This would help to ensure that data are comparable across different water sources and industries. These improvements are needed:

- Data are needed at scales that are large enough to protect point-scale confidentiality but small enough to allow users to aggregate information to useful scales.
- Protocols for provision of data to users are needed. For example, information providers need to attach reliability ratings to data. This will help users make better decisions about the usefulness of the data.
- Two-way flow of information between agencies and irrigators needs to be fostered. Typically, data have been extracted from irrigators by agencies. These data need to flow back to irrigators in forms that might assist them make better water management decisions. This could in turn, over time, improve the reliability of information collected from irrigators.

Finally, such a comprehensive approach can only be developed with the full involvement of the many irrigators, agencies and community groups that require these data.