

Irrigation in the Murray-Darling Basin: Input costs, receipts and net returns in 2006-07

From ABARE research report [09.20](#)

- In 2006-07 ABARE commenced a program of surveying irrigation farms across 10 regions of the Murray-Darling Basin. The data collected in the survey is being used to analyse a range of issues affecting irrigation farms within the Basin.
- In this report, data from ABARE's survey of irrigation farms in the Basin were used to examine the net returns (unit receipts minus unit cash costs) for various agricultural enterprises, including rice, cotton, wheat, horticultural crops and livestock. The analysis of average returns contained in this report provides a baseline from which changes in irrigation industries over time can be monitored.
- One of the factors affecting irrigators' responses to the current water situation will be the differing returns from various land uses. The allocation of land and water among farm enterprises is determined in part by the relative expected returns to the different enterprises. An irrigator seeking to maximise farm profits will allocate land and water according to that combination of enterprises which yields the highest expected marginal return.
- A major hurdle in the estimation of costs of production for individual enterprises using farm survey data is the allocation of costs to the various enterprises when there is more than one enterprise on a farm. Since many irrigation farms have more than one crop or livestock enterprise, statistical analysis was required to estimate the unit costs and returns for each enterprise.

Comparison of unit receipts, unit costs and net returns by enterprise, irrigation farms, Murray-Darling, 2006-07

	unit receipts	unit costs	net returns
	\$/ha	\$/ha	\$/ha
Average per farm			
Dairy	4 635	4 741	-105
Pome fruit	17 242	9 580	7 662
Stone fruit	10 286	9 411	875
Citrus	7 920	4 634	3 287
Wine grapes	5 355	4 207	1 148
Table grapes	9 969	5 766	4 202
Vegetables	14 744	10 381	4 364
Cotton	3 696	4 982	-1 285
Rice	2 874	3 896	-1 022
Irrigated wheat	822	965	-144

Note: This table is a summary of tables 4, 5 and 6 of the report.

- In this report, the technique of quantile regression was used to allocate farm costs among individual enterprises for each farm. Generally, the quantile regression analysis performed best for those farms with relatively few enterprises and where the sample size was relatively large. As a consequence, results are not shown for beef cattle, sheep or dryland crops.
- Overall, the results of the analysis show there was wide variation in unit receipts, unit costs and net returns across enterprises and farms (table). The analysis showed that pome fruit and vegetables generated the highest average net returns per hectare in 2006-07. At the same time there were average net losses for cotton, rice, irrigated wheat and dairy.
- In general, whole of farm rate of return figures display similar relative performance levels to estimated enterprise returns. However, for rice and cotton whole of farm returns are significantly positive, while estimated average enterprise returns are significantly negative (figure). This is not unexpected given that farms with cotton and rice are in general highly diversified. Farms with rice and cotton typically undertake a range of other livestock and cropping activities and returns from these activities are likely to have offset any losses made on rice and cotton crops.
- The estimation of cost curves to relate unit costs to farm size was not attempted in this analysis. However, there is potential for further research to be undertaken in this area once sufficient time series data is collected for irrigation farms.

Average enterprise returns and whole of farm return on capital

