

## **THE IMPACT OF IRRIGATION TECHNOLOGY ON THE FINANCIAL AND ECONOMIC PERFORMANCE OF SMALLHOLDER IRRIGATION IN ZIMBABWE**

### **Abstract**

The study assessed the impact of irrigation technology on the financial and economic performance of smallholder irrigation in Zimbabwe. The study was conducted in 2011 in the Hamamavhaire and Mhende irrigation schemes in Chirumanzu District (south-central Zimbabwe). A questionnaire survey was administered to 79 respondents drawn from farmers using sprinkler (n = 32), flood (n = 39) and drip (n = 8) systems. Gross margin analysis, in conjunction with cost–benefit analysis, was used to evaluate the financial and economic performance of farmers. Farmers using the sprinkler system obtained the highest total gross margin per hectare (US\$2762), followed by the flood system with returns that were 21% lower (US\$2191), while the drip system recorded 50% lower returns (US\$1387). Economic analysis indicated the superiority of the flood system (NPV = US\$36 699; IRR = 42% and BCR = 4) compared to sprinkler irrigation (NPV = US\$27 813; IRR = 38%; BCR = 2) and the drip system (NPV = US\$25 393; IRR = 23%; BCR = 2). While the flood system was the most desirable from the financial and economic points of view, because of low operational costs, this could be offset by negative environmental impacts. The study concluded that the choice of one particular irrigation technology over another is a fine balance between efficiencies that can be achieved and the development and operational costs. Irrigation technology alone does not determine financial and economic viability.