Potential Economic Benefit of Intensification of Beef Production in Australian Rangelands: An Operational Case Study Perspective

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Key words : Intensification ,applied investment analysis ,net present value

Introduction In Australia ,the development of rangelands has led to steady gains in pastoral productivity through more intensive and widespread land use (Stokes *et al* ., 2006) . Opportunities to benefit from intensification exist on large properties with relatively poor water and fencing infrastructure development ,resulting in uneven utilisation of available forage (Ash *et al* ., 2006) . The objective of this study is to value expected economic gains from carrying out property improvements on a beef property located in Northern Australia .

Materials and methods *Ulcanbah* " is an extensive beef grazing property of approximately 32 ,000 hectares located in the Desert Uplands region of Queensland . Land types include Silver-leafed Ironbark tableland and Gidyea scrub on cracking black clays and flood channels . Annual average rainfall is 533 millimetres .

An applied investment analysis was conducted using operator estimates . The proposal was for the further development of the property . Subdivision of large paddocks by fencing and installation of more water points throughout the property was planned in order to enhance forage utilisation . This increased utilisation ,coupled with adoption of managerial practices-rotational stock movement ,stock segregation by class ,marketing strategies and wet season spelling among them-is expected to allow an increase in breeder numbers . Herd number increases are expected to see enhanced operational profitability .

Data was analysed using the Breedcow and Dynama software package (Holmes ,2007) and Excel-based spreadsheets . Herd modelling was conducted and the net present value (NPV) of the investment was calculated . A discount rate of seven per cent was applied .

Results and Discussion Analysis of the proposed investment indicates a positive net present value . The NPV expresses the difference between the discounted value of future benefits and the discounted present value of future project costs . The additional economic benefit of undertaking the investment is $2 .2 M . Estimated economic benefits exceed costs ,providing an economic justification for undertaking the investment .

Expected budgeting includes disposal of capital assets purchased as part of the investment program . Further analysis could be conducted including the use of stochastic variables to model the risk component of the investment . Factors such as changing prices and/or yields could be considered . Additionally ,managerial practices could be monitored and adjusted in order to ensure that expected natural resource benefits are achieved . Such monitoring would to ensure that managerial practices were consistent with maintaining higher herd numbers ,coupled with the sustainability of the natural resource .

Conclusions The net present value of the proposed investment is positive . As the economic benefits of the development exceed project costs ,it can be justified on an economic basis . Based on the analysis conducted ,intensification of production through increased water points and fencing has a positive economic benefit .

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