

An economic analysis of native pasture in the hills and tablelands south-eastern Australia

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Summary

The study presents the results of an investigation into the technical and economic aspects of managing native grasslands on farms. Particular attention is given to how changes to the management of predominantly native grass paddocks affect the operation and profitability of the whole farm business.

This report is based on a detailed examination of the human, technical, economic and financial situation of four farms, two in North-East Victoria and two on the Southern Tablelands of New South Wales.¹ Native pastures are integral to the operation of each of the four farms. Three farms run sheep enterprises, one is a dairy farm, and all four have some beef cattle. The farms range in size, carrying between 3,300 and 8,000 dry sheep equivalents. All rely on a single operator or two-generation family partnerships. A case study approach is used to draw out the key processes that are operating on such farms.

On all four farms, the native pasture is found on what was once woodland. The properties are typical of many farms in south-eastern Australia which have native vegetation, e.g. pasture, marsh or bush, which has been significantly modified since European settlement. Like most such farms, none of these have sites which are of high conservation significance. However, the lessons drawn from using the whole farm business approach can be applied to other farms irrespective of the vegetation type or quality. Using the whole farm business approach meant: determining how the current farm system operates and how native pasture contributes to it, identifying and evaluating options to meet farm goals in the future, and evaluating how conservation management options might be integrated into the farm business in the future.

Current farm financial position

While many factors influence how farmers will manage native vegetation, the health of the farm business is critical. Like most Australian farms at present, all farms in the study have expected annual returns to capital of two per cent or below. Expected annual operating profits after tax range for the farms from \$2,000 to \$28,000. Expected annual net cash flow ranges from -\$16,000 to \$29,000 (after consumption allowance, interest payments and land lease costs). The effects of the cost-price squeeze mean that, if they stay in farming, the owners of all four farms need to increase

¹ A related report will present results for case studies undertaken on the riverine plains of Victoria and New South Wales.

annual net income in order to meet consumption requirements, pay for maintenance fertiliser, replace equipment and fences, and keep up interest and principal repayments.

Three main issues are considered:

- (i) are there options available on the farm to increase annual net income sufficiently to meet farm re-investment and consumption requirements?
- (ii) what role will the native pasture play in the future of such farms?
- (iii) can the required lift in income be achieved without adversely affecting long-term productivity of the land, without increasing off-site effects and while retaining the most diverse native pasture and remnant bush?

The pastures

The farms have relatively small areas of highly productive agricultural land, with most of each property being undulating or steep land of moderate production capacity. The native pastures are the main pasture type on country that is not generally arable. Pasture composition varies, even within paddocks, depending on aspect and topography. Diversity of native species is generally low, with the most native pasture species found at any one site being 14. Naturalised annual grasses make an important contribution to feed supply, particularly in late winter and early spring. At these times of the year, the native species may make up only 20-30 per cent of the ground cover but this increases dramatically as the annual species dry off in summer. Clovers are present throughout the pastures, at low levels if naturalised but in higher proportions if clover seed has been broadcast and then fertilised periodically.

Erosion is a problem on two of the farms. Acidity is constraining pasture management choices on three of the case study farms because many introduced grasses are acid intolerant. Salinity is a minor problem on two of the farms. All farms have some tree-dominated areas which are mostly grazed.

Results

A range of pasture-related development options and conservation management options were tested on one or more farms. The development options examined include: replacing native with introduced pasture, fertilising native pasture, sowing introduced species into native pastures with sub-division or liming, and irrigating or fertilising introduced pasture. The options examined which might assist conservation management include: resting land, retiring land and sub-division.

It was found that each farm has technically feasible options which could substantially lift annual net farm operating profit after tax. The conservation management options are more feasible in the context of such developments.

Farm development options

- (a) Annual operating profits can often be increased by sowing higher producing introduced pasture species. However, under current expected conditions, a profitable investment requires a stocking rate increase of six DSE/ha which is maintained for at least eight years. With good management on fertile soils this may

not be difficult to achieve, and all four case farms have recently sown or intend to sow introduced pasture. On the poorer land classes achieving and maintaining high stocking rates can be difficult. Spraying out native pasture and replacing it with sown pasture is not found to be justified on the case farms.

- (b) The productivity of some native pastures on all case farms can be profitably increased with regular use of low rates of fertiliser. Sub-division, and broadcasting or direct drilling clovers may also be involved. A return to capital of 15 per cent (real) or more can be expected on the case farms, based on a stocking rate increase of four dry sheep equivalent per hectare (DSE/ha) over 10 years. This strategy is very different to other types of investments and is characterised by: a low initial investment; annual fertiliser costs exceeding livestock gross margin for some years; long build-up to the steady state stocking rate; capacity to halt the investment; and a high salvage value.
- (c) There are other opportunities on each case farm to improve farm performance which do not require significant capital investment. In most cases these are being pursued by the owners, and can potentially make a substantial difference to their capacity to keep up with the cost-price squeeze. Such opportunities include changing the criteria for selecting rams and improving grazing management.

Conservation management

The effect of managing selected areas of native pasture differently to current management has been tested. The results may be a guide to other situations where different management of native vegetation might help reduce soil erosion and nutrient run-off, or contribute to bush regeneration.

Expected annual net income foregone by retiring marginal areas of farmland is expected to vary between \$30/ha and \$50/ha, not considering fencing costs. Such losses may lower if done as part of a paddock sub-division which may assist in better utilisation of the rest of the paddock. Resting areas of native vegetation for some weeks or months may have conservation benefits in some cases. The income foregone from resting paddocks will be lower than for retiring land, and may not be significant at all, if it can be used to rejuvenate pastures as well as achieve conservation goals.

If conservation management is placed in the context of managing the whole farm business rather than being treated as an isolated action, its significance changes. If an investment program results in substantially higher farm profit, the significance of expected annual losses associated with conservation management options declines. Results show that, in the absence of extra investments elsewhere on the farm, the expected fall in operating profit associated with conservation management is more than what two of the farmers may now be able to afford. However, if the various development options are undertaken, all four farmers are in a much better position to pursue non-economic goals such as conservation management.

Reconciling public goals and private interests

The importance of non-economic goals varies amongst farmers and so does the extent to which they will voluntarily act in the public interest. Consequently, a basic premise of the following discussion is that it is usually necessary to reward people for doing things that are in the public interest that they would not otherwise do. Further, bringing about change in the circumstances within which people operate, for instance by encouraging the development of farm business plans, may also lead to farmers taking up management actions in ways which are consistent with public policy goals.

The whole farm business approach requires programs for conservation management on private land to take into account the whole farm situation, and not just the paddock or remnant. It is also important to identify how the parcel of land of public interest might fit into the farm in the medium-term future. If the directions that farmers might take are identified, and the economic efficiency of alternative actions are evaluated taking into account risk and uncertainty, then the role of the native grassland in the farm system is being assessed in the light of the best information available. This provides a sound basis for devising actions to achieve public policy goals, or to convince farmers to change private goals.

Incentives may be justifiable to assist in the transition to farming systems that are viable in the long-run if the changes meet public goals but have insufficient private incentives. Developments that have a long lead-time like fertilising native pasture, or other developments that will indirectly ease the pressure on native pasture areas, may qualify. Such assistance could involve well-defined cross-compliance obligations with recipients negotiating conservation outcomes in advance.

The whole farm business approach makes it possible to give attention to the future of the farm itself as well as to the future of the conservation area to be managed. It is consistent with, and needs to be considered together with, other approaches, now in place or under consideration in Australia. The approach is a different perspective on rewarding to farmers for the provision of conservation services (Binning & Young 1997).

The whole farm business approach will encourage but not guarantee management for conservation values, so a more secure system of covenants or management agreements for areas with high conservation value areas is also required.

Implementing the proposed approach will require:

- (a) incorporating native pasture considerations into research, policy and extension programs for both production and conservation; and
- (b) integrating knowledge and principles about native pasture management and whole farm management, including the basic principles of farm management economics, into extension programs and advisory services, both public and private.