The relative profitability of long fallows in the Eastern wheatbelt of Western Australia

R.S. Kingwell and D. Tennant

Western Australian Department of Agriculture

Long fallowing was a common practice in the early days of wheat farming in Western Australia. For a variety of reasons (1) it was a desirable managerial practice, not the least of which being the 30 to 40 percent higher yields generated with fallow compared to non-fallow. However, since the 1930's many of the advantages of fallow were eroded by improvements in both farm technologies and the relative profitabilities of farm activities that compete with long fallows. Only since the 1970's has there been a renewal of interest in fallows on wheatbelt farms in Western Australia. Although past and present Western Australian field experimentation with fallows has been reviewed (1) and yield relativities of fallow versus non-fallow are well documented, little attention has been given to an economic comparison of fallow versus non-fallow (2). This work is a preliminary economic investigation of long fallows in the eastern wheatbelt of Western Australia.

Method

A Monte-Carlo simulation model of a typical heavy land farm in the eastern wheatbelt of Western Australia was developed. The model drew on yield data of crop-fallow (long fallow or 12 month fallow) rotations versus non-fallow rotations (1) and on other data characteristic of eastern wheatbelt farms (3). By drawing random samples from an underlying pattern of seasons, the profit performance of various rotation strategies across sequences of seasons could be gauged.

Results and discussion

Consistent with Victorian results (2), the Monte-Carlo simulation model of an eastern wheatbelt farm point to the long fallow system offering a much smaller range of net income outcomes compared to non-fallow systems. The small variance in net income associated with a long fallow system will be attractive to risk averse farmers or those guided by a safety first principle that requires net incomes always to be above some specified value.

Results show that although the yield advantage of the fallow system is on average reasonably large (> = 30%) nonetheless there are significant opportunity costs associated with long fallows. These opportunity costs, often overlooked by biologists, include foregone cereal or pea or livestock income in the year of fallow. Other cost changes associated with the long fallow system are higher variable costs of crop production and, for crop-dominant farms, lower fixed costs of crop machinery. Inclusion of all such costs in an economic comparison of long fallow versus non-fallow systems results in the analysis suggesting that a direct drilled non-fallow crop system is, at least at 1985-6 wheat prices, more profitable on average than a crop-fallow system. Only when the on-farm wheat price falls a further S10 to $15 per tonne does the crop-fallow system become attractive.

In the next few years if wheat prices fall and profit margins on wheat production narrow, then for some farmers adoption of a crop-fallow system may become an attractive or necessary alternative. However, the opportunity costs associated with a move into long fallows should be considered.

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