



# Evolution of farm management information systems

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## Abstract

Many past studies into the diffusion of business innovation in the farming community focused on factors associated with the act of adoption. This study attempts to promote the diffusion of computer-based management innovation by gaining a clearer understanding of the evolution of farm management information systems (FMIS). Characteristics of farm businesses, their FMIS, and the factors related to the level of sophistication of FMIS were assessed. Results confirm the evolution of FMIS is a contiguous process of increasing levels of sophistication gained through the use of information from farm record systems (FRS) in decision making, and the adoption of farm computers. It was also found that the level of sophistication of FMIS relates more to common business factors rather than factors specific to farming activities. © 1998 Elsevier Science B.V. All rights reserved.

*Keywords:* Farm computers; Farm business management; Management information systems

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## 1. Introduction

If farmers are to prosper in this turbulent economic environment they must manage their productive resources more efficiently and become more effective business managers. There appears to be wide-spread enthusiasm by rural extension

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services and some private organisations for promoting the effectiveness and efficiency of farm management through the use of computer-based management innovation. Innovative computer-based management tools have the potential to increase the quantity and quality of information available for decision making. Used in conjunction with modems, computers will soon provide the opportunity for remote farm businesses to access new sources of management information through connection to the Information Superhighway and the World Wide Web (MacKenzie, 1996).

Many previous studies examining the diffusion of computer innovation in the farming community investigated factors associated with the act of adoption. In reality, most farm computers become part of a management information system. It is believed that the success of diffusion programs for computer-based management innovation may be enhanced if promoters could gain a clearer understanding of the evolution, or growth in sophistication, of farm management information systems (FMIS). This study attempts to promote a clearer understanding by describing characteristics of farm businesses and their FMIS, examining the major milestones in the evolution of FMIS, and by identifying some of the factors related to the level of sophistication of FMIS.

### *1.1. Objectives of the study*

The three main objectives of this study are:

1. Describe the characteristics of farm businesses which provide the context for the examination of FMIS.
2. Describe the characteristics and examine the major milestones in the evolution of FMIS.
3. Identify factors associated with the level of sophistication of FMIS.

### *1.2. Background*

The literature examining diffusion of innovation, and that more specifically related to the innovative behaviour of farmers, suggests several factors potentially significant to the adoption and use of computer-based management innovation within the context of FMIS. This literature also provides insight into the characteristics of farm businesses and FMIS.

#### *1.2.1. Innovative behaviour*

An innovation is a product or a methodology that an individual perceives to be new even if it has been available for some considerable length of time (Scheuing, 1989). Within the context of a farm business, both record keeping methods and computers are seen as innovations. Therefore, the adoption and use of bookkeeping/accounting methods and computer technology is interpreted as innovative behaviour. Using Rogers (1995) five adopter categories of: innovators; early adopters; early majority; late majority; and laggards as a framework several general factors related to innovative behaviour are identified in the diffusion literature.

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