

The Adoption of Agricultural Innovations

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Abstract

Technological change and innovation is a fundamental force shaping our lifestyles, our culture and our future. We devote a substantial proportion of our wealth to research activities that span all areas of society, including agriculture. We make this investment, at least with regard to agricultural research, primarily to create wealth and conserve our natural resources.

The return to our investment in agricultural research, the wealth created and the resources conserved depends, in part, on the extent to which primary producers adopt the products of that research. Consequently, maximising the return to our investment in agricultural research involves identifying what research products are likely to be adopted by primary producers and by how many, and determining what processes are required to ensure the diffusion of research products among producers as rapidly as possible. All these depend on an intimate understanding of how the products of research can contribute to better satisfying the needs of primary producers in the conduct of their agricultural enterprises.

The case was made in this thesis that established schools of thinking on the adoption behaviour of primary producers do not provide a rigorous, explicit procedure for discovering how innovations can contribute to satisfying the needs of primary producers as managers of agricultural enterprises. As a consequence, policy makers and investors in research and extension have lacked a rigorous method for identifying the population of potential adopters of agricultural innovations. This means policy making and investment in research and extension has sometimes lacked a thoroughly defensible foundation for setting priorities for agricultural research, and for designing and evaluating programs for promoting the adoption of agricultural innovations.

The aim in this thesis was to describe a framework for discovering how agricultural innovations contribute to satisfying the needs of primary producers as managers of agricultural enterprises. Meeting this objective required describing a method for properly specifying the population of potential adopters of agricultural innovations. Drawing on consumer behaviour theory and farming systems theory a method was described that was based on the assumption that the adoption of agricultural innovations is a highly involving decision for producers and the hypothesis that the

benefits to be had from adopting an agricultural innovation are influenced by particular elements in a farming system that are specific to each innovation. These elements were termed the farm context for an innovation. The method allowed the population of potential adopters to be classified into segments on the basis that producers with different farm contexts obtained different benefits from an agricultural innovation.

The method was tested by application in four case studies in which the population of potential adopters of agricultural innovations was estimated through the identification of the farm context. The case studies included intensive irrigated and extensive dryland agricultural industries, cropping and livestock industries, and perennial cropping industries. The case studies covered innovations with different diffusion characteristics ranging from relatively simple and easy-to-trial innovations to innovations that were more complex and difficult to trial. The case studies spanned the four dimensions of farm context (strategic, labour and lifestyle, technology and practice, and biophysical) and illustrated the ways in which the mix of these dimensions in the farm context differs across innovations.

The results of the case studies supported the hypothesis and demonstrated that the method for identifying and quantifying the population of potential adopters of an agricultural innovation by identifying the farm contexts for an innovation has merit. The results from the case studies also indicated that the method was generalisable across agricultural industries, innovations that differed in their diffusion characteristics, and the different dimensions of the farm system that shaped the benefits to be had from an innovation.

Certification

I certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree or qualification.

I certify that any help received in preparing this thesis, and all sources used, have been acknowledged in this thesis.

A solid black rectangular box used to redact the signature of the author.

Signature

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