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Agricultural Climate Information Use: An Application of the Planned Behaviour Theory

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ABSTRACT

Despite considerable effort in developing climate information and demonstrating the potential benefits available to farmers, use of the climate information by farmers in farming decisions has not changed. The present research employed the theory of planned behaviour (TPB) as a theoretical framework to analyze the antecedents of agricultural climate information use behaviour. Fars Province wheat growers (n= 314) were administered a questionnaire survey that measured standard TPB constructs. The data and hypotheses were examined using structural equation modeling (SEM) by AMOS 7. Results from the maximum likelihood estimation showed that attitude was positively related to farmers' climate information use in farming decisions. Thus, greater attitude (instrumental and affective) toward use of information in farming decisions was associated with stronger intention to engage in behaviour. Chi-square tests and fit indices indicated good fit for the final structural models. The results of this study demonstrated that the modified theory of planned behaviour provided a significant improvement on the model fit by adding a direct causal path linking attitude to behaviour. Applicability of the theory of planned behavior for measuring levels of wheat growers' climate forecast use and the implications for future research are discussed.

Keywords: Climate information use, Farming decisions, Structural equation modeling, Theory of planned behaviour, Wheat growers.

INTRODUCTION

Climate information has been recognized as a basic production factor affecting agricultural systems (Harrison and Williams, 2007), particularly in response to water deficit as a major limiting factor in crop production (Pasban Eslam, 2009). Although the related information may be perceived of value to agricultural users (Ingram *et al*., 2002) and despite significant improvements in the climatic information production in the last decade (Subbiah *et al*., 2004; Ziervogel *et al*., 2005; Hu *et al*., 2006; Artikov *et al*., 2006), farmers, as users of this system, have not altered management decisions to take advantage of these information (Artikov *et al*., 2006; Hu *et al*., 2006; Nazemos'sadat *et al*., 2006). This could be due to a number of reasons ranging from limitations in modeling the climate system's complexities (e.g. such information can only be probabilistic, have coarse spatial and temporal resolution due to the chaotic nature of the atmosphere, not all relevant variables can be predicted, the skill of this information is dependent on region and time of year, is not well characterized or understood, contradictory information may coexist), to procedural, institutional, and cognitive difficulties in receiving or understanding climatic information, and in the capacity and willingness of decision-makers to modify actions (McIntosh *et al*., 2007; Pulwarty *et al*., 2009). Accordingly, the lack of use of climate information can be analyzed at least in terms of two major aspects. The first

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