Socio-ecological influences: Strengthening Australian farmers climate change preparedness

This study explores the social factors that influence Australian farmers' ability to adapt to climate change risks. The grounded theory approach constructed models that reflected the processes by which farmers prepare and adapt in the social context. The model found that farmers who work together in groups, shared knowledge and influenced widespread preparedness in adapting to climate change risks. These groups "learnt-by-doing", normalised innovation and facilitated new practice uptake. Farm advisory and scientific services were found to be influential in facilitating innovation with individual farmers. Crisis events, as well as trusted influences of groups and advisors were found to be important triggers for "game-changing" adaptive performance. Another model found mental and social markers of personal agency and resilience that influence farmers' preparedness and adaptive responses. The findings suggest that creating a social environment that promotes cooperative behaviours, learning-by-doing, and stronger personal agency can enhance farmers' adaptive performance and mitigate climate change risks.

Abstract

The increasing risks of climate change are challenging Australian farmers to strengthen adaptive behaviours and be better prepared. This study explores the efficacy of socio-ecological influences on the preparedness behaviours to adapt, and the socio-cognitive agency of Australian farmers. Interview data were collected from 22 farmers across Eastern Australia and grounded theory analysis used to construct two theoretical models. The model of socioecological intel found that localised farmer groups, as sources of farm intel, had the most influence on farmers' preparedness behaviours, collectively and individually. These groups valued shared learning, "learning-by-doing", and normalised the incubation and adoption of innovation. Farm advisory and scientific services were influential sources of innovation with individual farmers. Behaviours were found to adapt as 'game changing' preparedness responses to the trusted influences of groups and advisors, nonetheless more commonly, as adaptive reactions to disruptive climate events. The model of socio-cognitive agency found markers and precursors of prepare and adapt processes and farmer agency. Thinking and reflective-inquisitive capabilities, values directed motivation, and emotional regulation were key cognitive markers. The socio-cognitive precursors of values, training and education, self-determination, and community norms strongly influenced agency and preparedness behaviours. The prepare and adapt behaviour behaviours of farmers in this study reflect the social influences of groups, peers, and technical expertise, prior education, and willingness for self-development. These findings imply that farmer learning and research networks, and strategic learning programs are points of influence to leverage the development of prepare and adapt behaviours.

Key words: Australian farmers, game-changer, mental models, adaptive responses, preparedness, socio-cognitive agency, socio-ecological influence