

# RESEARCH DIRECTIONS

## Improving Farmer Livelihoods

**Professor Bill Bellotti of the School of Natural Sciences and a multidisciplinary team of researchers and policy analysts from the CSIRO, University of Queensland, Lanzhou University, China, the Rural Development Institute Chinese Academy of Social Sciences and the Agriculture and Animal Husbandry Bureau, China is collaborating to help Chinese farmers improve their land and water resource management and farming efficiency practices. This research is supported by the Australian Centre for International Agricultural Research.**

'The Loess Plateau in the Gansu Province in China has a low and erratic rainfall and the local agriculture consists of a mix of food crops and livestock, depending on the rainfall', explains Professor Bellotti. 'The way the land is being used can be better managed with current technologies and knowledge to effect an overall increase in productivity of up to 20 per cent. Making the transition to a more market-oriented system will help increase the farmers' income. Better land-management practices will also have positive environmental impacts by addressing soil erosion, over-grazing and sedimentation problems.'

A baseline position will be established for measuring project progress by surveying project participants and farmers. Using data collected from the Chinese farms, a simulation model will be used to predict farm outputs and resource requirement based on crop and livestock type. Similar farm-management techniques to test new crop-livestock management systems will be used for comparison in a region of Australia with similar rainfall to the test sites in China. This will involve integrating perennial crops for grazing, with crops traditionally based on annual food crop and pasture species to achieve better overall productivity and water and soil conservation.



This research will build Australia and China cooperative relationships in crop-livestock management systems as well as inform new agricultural policies. The new farming technologies and practices transferred to China will potentially improve both productivity and sustainability of China's agricultural activity. The ultimate objective of the research is to alleviate poverty and improve food security on a household scale in one of China's poorest regions.

**Project Title:** Improving farmer livelihoods through efficient use of resources in crop-livestock farming systems in western China  
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