RESEARCH IN PROGRESS
Assessing the value of Seasonal Climate Forecasts to Central West farmers

Description:
This project is funded by Land and Water Australia to the value of $84,000 and is conducted by Prof Kevin Parton (ILWS) and Jason Crean, Drs John Mullen and Randall Jones (NSW Department of Primary Industries). The duration of the research is from 2005-2009.

Objectives:
This study examines the value of Seasonal Climate Forecasts (SCF’s) in mixed farming systems, typical of broad acre agriculture in NSW. It aims to determine whether SCF’s can help reduce uncertainty and allow farmers to better manage risk. SCF’s predict climatic conditions 3 to 6 months in advance by estimating the probability of a certain amount of rainfall occurring. Better understanding and improved predictability of climatic variations have led to renewed interest in the value of SCF’s.

Methods:
Methods involve using economic and crop simulation modelling to investigate the practical value of the Southern Oscillation Index Phase-based SCF’s to farmers in Central West NSW. SCF’s are beneficial when they allow farmers to reduce losses associated with expected adverse climatic conditions or take advantage of expected favourable climatic conditions. The researchers used computer models to simulate the outcomes of crop management decisions on a representative mixed farm at Condobolin, based on historical climate records between 1913 and 2004, for three different soil moisture levels at the start of the winter cropping period. A fixed management regime (without using SCF’s) based on a single farm strategy that performed best during all climatic years was compared with a flexible management regime (using SCF’s) in which the best farm strategy for a given forecast type was implemented. The value of SCF’s was determined by comparing farm profits between fixed and flexible management throughout the simulation period.

Findings to date:
The researchers found the SCF system had the potential to improve average farm profits by only a limited amount. The value of the benefit was dependent on the level of soil moisture at the start of the cropping season. The highest values for the forecast were obtained for a wet forecast starting from a low soil water profile, and for a dry forecast starting from a high soil water profile. The modelling also showed some phases in this forecasting system did not have sufficient correlation with rainfall and crop yield to influence farm decisions, meaning farmers need to be aware of when to apply and when to disregard the information provided by SCF’s.

Policy implications & anticipated outcomes
The project results show clearly a need to improve the accuracy and timeliness of seasonal climate forecasts. If the accuracy level already achieved in July could be developed for April, considerable value would result in the decision context under study.

Publications:

Five conference papers have been presented regarding this research.

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