

## **Conservatism, complexity and consequences**

Chris Sounness<sup>1</sup>, Danielle Park<sup>1</sup>, John Williams<sup>2</sup>, De-Anne Price<sup>1</sup>

<sup>1</sup>DPI Horsham, 110 Natimuk Road, Horsham, Vic. 3401

<sup>2</sup> Research Fellow, Faculty of Land and Food Resources, The University of Melbourne, PO Box 60, North Carlton, Vic. 3054.

### **Abstract**

The risks associated with farming are intrinsically high because of agronomic, weather and market variables. There seems to be a paradox whereby the more these variables are understood, the greater the complexity of knowledge. Risk decision support methods often are perceived as complex and compound farm management problems.

There are perceived barriers to the adoption of risk management practices for growers and many do not trust the outputs. Often growers say they are risk averse and conservative, but then paradoxically make high-risk decisions. Farmers in general therefore encounter financial insecurity due to unnecessary exposure to price and production risk.

Risk management decision methods need flexibility and some complexity to enable them to be adaptable and add value for growers. Current marketing methods such as the pooling system are simple but often do not lessen risk. For risk management methods to succeed, growers need a simple user interface that has low perceived complexity to enable adoption of the technology.

Two surveys on grain growers' grain marketing profiles and climate risk have been recently undertaken in the Wimmera region of Victoria. Survey results indicate growers are comfortable with a low to moderate level of risk. However their perceived actions in both grain marketing and climate risk management seem to expose the growers to a very high level of risk. Under high-risk situations, there appears to be a trade-off between achieving high profits in a few years and longer-term financial insecurity.

### **Key Words**

Risk management, climate risk, grain marketing, farmer decision-making, adoption.

### **Introduction**

Grain growing has risk attached to it. Most growers accept they can encounter high levels of seasonal climate risk, agronomic and price risk to produce and market their grain. Growers perceive themselves as conservative who attempt to minimise risk. While Agronomic risk has been lessened with better varieties and improved management techniques less effort has been put into managing price and climate risk.

Pricing risk in the past was managed by using a pooling system where a statutory authority marketed the grain on the growers' behalf to maximise returns. This has meant growers did not have to be concerned about marketing their product, as there were few other selling options. However growers faced very high price risk as the pool price had to be accepted. Now pools are used in conjunction with a range of tools based on futures and options. This means growers intending to maximise returns have to actively market their crop (Bradley & Capp 2000). Growers now can use these tools to lessen price risk but need to know their costs of production per tonne produced.

Climate risk forecasting has only low to medium skill in Australia but the tools offer substantial benefits to growers in lessen the risk that they face (Hayman P & Fawcett R 2001). They can help growers look at the possible outcomes and the likelihood of any particular scenario occurring (Carberry PS et al 2002). Understanding the probabilistic nature of climate outlooks aids in understanding the likely cost of

production per tonne produced. However many growers have an expectation of a deterministic climate outlook rather than one based on probabilities

## Methods

Two surveys were conducted with growers in the Wimmera region of Victoria during the first half of 2006. The first survey undertaken by the Department of Primary Industries, Horsham in collaboration with the University of Melbourne asked growers of the production and pricing decision-making undertaken for wheat. It was posted out to approximately 400 farmers in TOPCROP grower groups and 51 responses were received.(Park et al 2006). The second survey looked at growers' knowledge, perception and usage of climate risk tools. Members of 10 grower groups filled in surveys at the start of TOPCROP meetings and 108 farmers completed the survey (Price et al 2006).

## Results

Growers who are active in managing their cost of production per tonne and have targeted yields tend to have more knowledge and usage of both price risk and climate risk management tools. (Table 1)

**Table 1. The use of seasonal climate tools in relation to target yields and grain marketing.**

	Grower rating on the importance of target yield	Calculating yield potential for marketing (% of growers)
Use seasonal climate risk tools n=55%	Very important.	75%
Have not heard of seasonal climate risk tools n=45%	Neither important or unimportant	25%

While all growers perceived they had a similar moderate level of risk, growers with a low cost of production per tonne were using available tools to lessen the risk. Growers who had a higher cost per tonne of wheat produced had a higher level of risk and seemed to be less likely to use both climate and price risk management tools.

**Table 2. Variable cost of production per tonne in relation to the ability to calculate variable cost of production per tonne and the likelihood of using price risk tools.**

	Ability to calculate variable cost per tonne	Using price risk management tools. (Hedging and forward contracts)
Low variable cost of production (< \$80/ tonne) n=33%	100%	36%
High variable cost of production (> \$80/tonne) n=67%	14%	9%

Calculating variable costs is a more complex concept as the yield is probabilistic in outcome rather than deterministic and therefore the cost of production per tonne is probabilistic during the growing season. A possible reason is growers who grasp the probabilistic nature of production are able to focus on variable cost per tonne. (Table 2) Growers who are not using the risk management tools seem to be more focused

on a variable cost of production based on a per hectare. This is a more simplistic concept to grasp than the probabilistic based variable cost of production per tonne.

## **Conclusion**

Growers who are not using climate and price risk management tools seem to be exposing themselves to a higher level of risk compared to growers who do. Having higher exposure to risk can increase return but also increase financial losses. Growers who are using risk management tools are more likely to be more focussed on their cost of production per tonne rather than the cost per hectare. This idea if supported by further research suggests people who are working with growers to increase the uptake of risk management tools may need to work with growers in developing understanding of cost of production per tonne. This is because the results suggest that growers who grasp the probabilistic nature of production are able to focus on variable cost per tonne, and are more likely to be using risk management tools.

## **References**

Bradley L and Capp D (2000). The power of none. Review Vol 52, No. 4 pp 24 –25

Carberry PS, Hochman Z, McCown RL, Dalgliesh NP, Foale MA, Poulton PL, Hargreaves JNG, Hargreaves DMG, Cawthray S, Hillcoat N, Robertson MJ. (2002) The Farmscape approach to decision support: farmers, advisers, researchers, monitoring, simulation, communication and performance evaluation. *Agricultural Systems* 74 2002 141 -177

Hayman P and Fawcett R (2001) Seasonal Climate Forecasting and the South Eastern Grains Belt

Climate Variability in Agriculture Program (CVAP) Final report. Seasonal forecast in SE Australia – Skill.

<http://www.cvap.gov.au/HAYMANreport.pdf>

Park DL, Sounness CJ, Williams J 2006. Profitability and the cost of production. 13<sup>th</sup> Australian Society of Agronomy Conference. Poster In Press

Price DR, Sounness CJ, Park DL (2006) Do seasonal climate risk management tools address the risk. 13<sup>th</sup> Australian Society of Agronomy Conference. Poster In Press