

Title Economics of using aerated storage to minimise the impact of weather damage during wheat harvesting

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Abstract

A wheat harvest system simulation Model (WHSSM) was developed and used to investigate the economics of using aerated storage to minimise the impact of weather damage during wheat harvesting. The economic returns from grain production with and without aerated storage were examined using 15 years (1991–2005) of weather data for Goondiwindi, Queensland, Australia. The effect of different drier capacities was investigated. For continuous flow driers and batch driers, the optimum harvest moisture contents in the given farm setup were 14 and 13%, respectively. No positive effects from using aerated storage were achieved if growers use either high or medium capacity driers. Aeration cooling was however useful in supporting low-capacity drier with inadequate drying capacity or batch driers when the grain is harvested at high moisture contents. The results of this study highlight the importance of optimising the integration between agricultural machinery used, crop performance and perceived weather risk.