

# The Impact of Whole Farm Income Insurance on Land Use Decisions: Modeling Risk Management for Dutch Arable Farmers

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European agriculture has been characterized by increasingly variable incomes in terms of both level and variance, mainly as a result of reforms that sought to liberalize markets and decouple payments from production. The EU's recent agreement on Common Agricultural Policy (CAP) reforms of December, 2013, entails an ongoing shift away from coupled support, highlighting farmer's need for risk management. This study analyses the impact of whole farm insurance (WFI) on producer's crop allocation decisions, meaning that if income falls by 30% or more, farmers are eligible to receive up to 70% of their lost income. We assume that the producer is concerned with maximizing utility where expected income is adjusted for risk. Using data of Dutch arable producers of different sizes we investigate optimal crop portfolio under WFI, where insurance depends on crop allocation, while at the same time crop allocation depends on the type of insurance provided. The model is calibrated using positive mathematical programming (PMP). Random crop prices, yields and revenues are generated using Monte Carlo simulation, thus explicitly accounting for trends and variability in prices and yields. Results indicate both a crop-specific and farm-specific effect; crop specific because farmers are more willing to allocate their land to crops with higher returns but also greater risk, farm specific because there is a bias towards smaller farms in terms of gross revenues but towards larger farms in terms of wealth effect.



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