Application of Meteorological Data in Agricultural Products' Insurance

Case Study: Rainfall Index Insurance in Quchan City

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Abstract

A wide range of natural hazards such as storms, lightning, floods, heavy rains, cold and drought may damage the crops. Methods and various innovations, which are based on the statistical indicators, are used to increase the efficiency of crop insurance policies. One of the most efficient of these methods is crop insurance based on the weather indices. This research is done based on drought as a high risk for rain-fed wheat production. Yield and rain fall as two important variables are analyzed during a specified period from years 1992-1993 until 2011-2012 in Quchan. Trend of yield changes during the statistical period was investigated and the effect of rainfall on the yield for wheat was analyzed using common statistical softwares. Regression models were used to predict wheat yield where among the used models for prediction only weighed regression model was successful, since at this method, the correlation between rainfall and yield obtained 99%. This value explains the high relationship between yield and rainfall (in other models correlation coefficient reached to 80%). At this model, yield loss resulting from rain loss was calculated and rainfall index was obtained for application in crop insurance. Ultimately, compensation fee in this procedure compared to the usual procedures for crop insurance.

Key words:

Crop Insurance, Rainfall Index, Weather Based Index Insurance, Wheat, Drought.

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