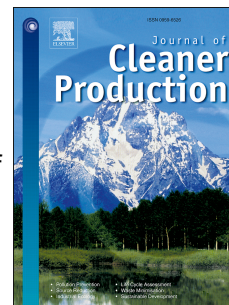


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Factors affecting farmers' risk perceptions regarding biomass supply: A case study of the national bioenergy industry in northeast China

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ABSTRACT

To solve the insufficiency of biomass supply in the biomass power industry of China, this study developed a conceptual model of farmers' risk perceptions on straw supply (FROSS) activities by integrating influencing factors, namely, socio-demographic characteristics, policy guidance factors, economic factors, and trust factors, into the model (Wang, 2015). The FROSS model was empirically tested in a survey on the risk perceptions of 275 farmers living around a biomass power plant in northeast China. The results of multiple regression analyses on the influencing factors indicate that the proposed model accounts for 67.4% of the variance in farmers' risk perceptions. The factors that dominantly influence farmers' risk perceptions were then identified, after which factor analysis that was conceptualized along personal- and environment-related risk perceptions was carried out. The influencing factors predict more than 80% of personal-related risk perceptions but only 16.2% of environment-related risk perceptions. Focusing on the initial stages of analyzing the factors that affect farmers' risk perceptions regarding straw supply activities improves our understanding of straw demand risks in China's biomass power industry. The implications of the results are discussed.

Keywords: Farmer' risk perception, influencing factors, biomass supply

1. Introduction

The huge growth in external costs caused by pollution, along with the shortage of fossil fuel reserves, gives rise to concerns that strongly motivate the development of power plants that are environment friendly and based on renewable resources. Biomass is a promising alternative to fossil fuels because its use mitigates environmental pollution and optimizes energy structures (Hu et al., 2014). In China, a major application of biomass is combustion for electricity and heat generation (Wang et al., 2009). Despite this promising avenue of power generation, however, current

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