SYSTEMATIC RISK MANAGEMENT APPLIED TO FARM SAFETY AND SECURITY MANAGEMENT

Jarkko Leppälä

Natural Resources Institute Finland (Luke), Latokartanonkaari 9, 00790 Helsinki, Finland, forename.lastname@luke.fi

The objective in this PhD study was to apply systematic risk management tools to farm safety and security management. The problems and risks are diverse in farming, which threaten safety and security on farms. Farm managers have to consider in their daily work the whole set of risks including risks to the health and safety of the workers, finance and asset risks, environmental risks, production and weather risks and food safety risks to consumers. Managing these risks is critical for the sustainability of farm production and business. Currently, there is little information how risks are managed on the farm, overall, and how farm safety and security management is integrated into risk management on farms. Systematic review of the literature, surveys and case studies were conducted to identify risk management approaches in agriculture. Risk management aspects of a national health and safety program were evaluated, and farm-level tools were developed to improve safety and security management on farms.

As a result of the study new implication describing the farm manager's various tasks and the farm safety and security risk management approach is presented. The results point out the need for systematic risk management approach in farm safety management. The findings indicate that safety risks were connected to other management risks on farms. Injury risk were significantly connected to animal (vs. crop) production, larger farm size (field and herd size), dependence on one person, physical work strain, perceived fire risk, and infrastructural problems on farms. Regular monitoring of safety and security risks was protective against injury incidents. A contextual tool for preliminary farm risk identification, a Farm Risk Map, was constructed and tested. The Farm Risk Map includes a list of 90 farm risk areas, divided into three categories: risk sources outside the farm, risks inside the farm and risks that the farm poses to customers, society, and the environment. Each risk area requires a different perspective and different tools to handle the specific risk.

Risk management tools to assist farmers are not currently in a sufficient level compared to safety and security risks faced by farmers. In the long run, it may affect the sustainability of the food supply chain. Improved knowledge management skills and advanced use of holistic risk management tools are needed on farm risk management in the future. The Farm Risk Map helped the case farmers to visualize and identify major risk sources affecting the farm operations. It can be used to define the risk context on farms. Additional tools to assist managing and controlling major farm risk areas were presented. The five articles included in this dissertation describe and analyse the construction and usability of the new tools for safety and security management on farms.